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COMMAND AND GENERAL STAFF SCHOOL

FORT LEAVENWORTH, KANSAS

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Volume XXIII
1944

Number 12

COMMAND AND GENERAL STAFF SCHOOL

MILITARY REVIEW

MONTHLY REVIEW OF MILITARY LITERATURE



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March 1944



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Salerno

MAJOR GENERAL W. H. H. MORRIS, JR., *United States Army*

THE ACTION during the early phase of the Salerno campaign possessed all the variety of the Command and General Staff School course. A landing on a hostile shore, an attack, a defense, an enemy counterattack, and a withdrawal by our own forces followed in sequence during the week of 9-16 September at which time the writer and his Aide,

General Montgomery closely pursued the Hun and effected the first large-scale Allied landing on the Fortress Europe since the early days of the war. This invasion took place 3 September against the toe of the war-weary Italian boot. Weary as this boot had become, it was still a long, hard road on the way to Berlin. To decrease the length of this road as well

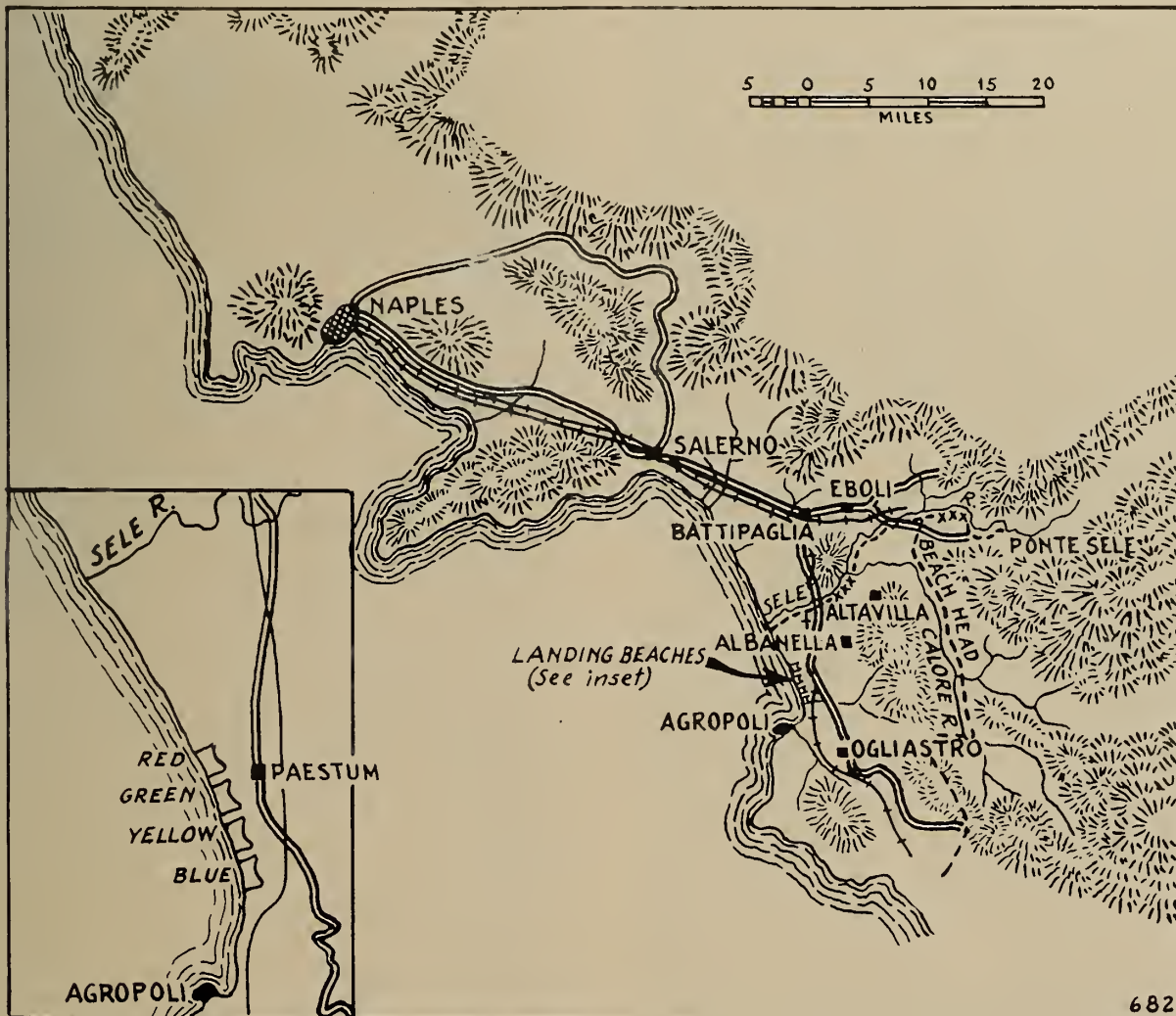


FIGURE 1.

Major Randolph M. Jordan, Cavalry, were present as observers. In other words, during the short space of one week, practically every type of major tactical maneuver was employed.

In order fully to appreciate this operation, the reader must have a clear conception as to its relation to the "big picture" or over-all strategy. Reviewing the events that took place in the late summer, it will be remembered that combined British and American forces had battered their way across the rugged mountains of Sicily and forced the retreating Germans to evacuate their troops across the Straits of Messina into Italy. The British Eighth Army under

as to present a most formidable threat to the lines of communications of the enemy forces in southern Italy, it had been decided that General Clark's Fifth Army, which was now a part of the XV Army Group, should "leap frog" the Eighth Army and land farther north on the peninsula. This plan, which had been made weeks prior to the successful completion of the foregoing events, had been moulded into the over-all plan.

Before describing the conduct of battle, it is essential that the military geography of this area be studied (see Figure 1). As can be seen from the sketch, there are two plains in this area; the Cam-

pagna Plain surrounding Naples, and the Sele Plain just south of Salerno. Elsewhere the terrain is mountainous and presents difficulties for military operations of combined armies. Close examination of the sketch shows that to reach Naples from the south, the army would be forced to pass through two defiles which could be relatively easily defended by the enemy. This perhaps leads the reader to wonder why a more advantageous beach was not selected. The Allied Forces had carefully weighed the advantages of all possible sites and had chosen this one for the following reasons: Although the beaches north of Naples afforded excellent approaches to army objectives, sand bars off shore greatly increased the difficulties of the amphibious operations and jeopardized the chances of success. The disadvantage inherent with the beaches in the vicinity of Naples was the shore batteries that defended this area. The mountainous formation which always permitted the enemy to counterattack from the high ground onto the plain was likewise disadvantageous in the early phase of the assault as the elevation behind the beaches afforded the enemy excellent observation and gun positions. It also limited the depth of the beachhead. As for the drainage system, it is readily seen that the principal river in this area is the Sele. Its main tributary, the Calore, and the numerous small mountain streams which flow southwest to the sea complete this system. The rail system shown represents an electrified double track railroad which runs from Rome to Battipaglia where it divides into two single tracks. One of these lines continues to the toe of Italy and the other to the heel. Highway No. 18, which runs northward from Agropoli, is an excellent one and was extremely important as it was the only road available for north and south movement of large forces. The remainder of the road net consists of secondary roads which are numerous throughout the area and, generally speaking, are in good condition.

However interesting the sea voyage might have been to the writer personally or to the operation as a whole, it will be omitted from this article as the writer will concentrate on the ground operations. Suffice it to say that although the convoy was not without incident it arrived in the Gulf of Salerno in fine shape. Whether by forethought or coincidence the announcement of the Italian surrender reached the troops during this trip, and unfortunately produced an undesired effect. Heretofore Italian coastal units had defended the shores of the Fascists, which meant that with the cessation of hostilities the beaches might not be defended. This theory, of course, was never officially entertained, but at the same time it did tend to dull the fighting edge of thousands of troops who had set sail ready to meet fire with fire and who now, as they were about to land, were not even sure as to whether they would meet resistance on the beach. Later events proved that the German, who is always a clever and capable enemy,

had occupied the Italian positions prior to the latter's capitulation.

The Fifth Army, which was initially composed of one American and one British corps, had the following mission: "To seize the Port of Naples and to secure the airfields in the Naples area with a view to preparing a firm base for further offensive operations." The general scheme of maneuver was to attack with corps abreast with the American corps on the right or southern flank, to establish a beachhead, and then to swing northward towards Naples.

At precisely 0330 H-Hour on 9 September, D-Day, the American and British forces hit the beaches. For the fifteen minutes prior to 0330, however, there had been little similarity in events in the two sectors. On the British front the naval guns had been shelling the coastal defenses while in the American sector there had been no such firing. This difference in tactics is explained by the relative importance attached to surprise. As in any operation, this surprise takes shape in two forms, i.e., one of time and the other of place. The British decided that either all surprise elements were lost or that the value of supporting naval fires outweighed the possible advantages of partial surprise. On the other hand, the American decision rested on the hope that enough of the surprise element remained to warrant the withholding of the naval support. It would undoubtedly have been more advantageous to have had this support, as events were to prove the Germans were well prepared for the invasion. One lesson, in the writer's opinion, that can be learned from this is that the naval guns should be employed to soften the enemy's defenses unless absolute surprise is a certainty.

Upon reaching the shores, the British and Americans again found different types of problems. In the British sector the enemy's defense was more highly organized, as it was based largely on infantry well entrenched in prepared positions which were protected by wire and heavily supported by artillery. The Americans, on the other hand, encountered less infantry and artillery but were met by a series of tank attacks which were composed of from three to thirteen tanks each. Also the Germans met the American assault with direct 88-mm gun fire from positions in the hills back of the beaches. These 88's were so located that it was possible to enfilade the beaches from the south with their fires. These guns proved to be a real threat to the incoming landing craft and were able to score direct hits on several of them. Although the beaches were mined, there were relatively few casualties as a result. On at least one occasion these mines were electrically discharged, as was evidenced by the simultaneous explosion of a number of them.

The assault division was the 36th which prior to this time had seen no combat service but which had received intensive training both in the United States and overseas in this type of operation. In the assault,

it attacked with two regimental combat teams (RCT's) abreast. Each RCT was allotted two of the four American beaches which were designated as Red, Green, Yellow, and Blue (see inset, Figure 1). Both RCT's attacked with two battalion combat teams abreast with one in reserve. In general it required from six to eight waves to land the assault troops of an RCT with its attachments. The scheduled time required to complete this operation was from H-Hour, when the assault rifle companies with attached engineer obstacle-removing teams landed, until H+155 when the heavy prime movers were to be beached. Actually this schedule was not maintained as the unforeseen elements of combat delayed progress. The third regimental combat team was division reserve initially and was to land on Red and Green beaches on D-Day as directed by the Division Commander. Initially all four beaches were tenable, but as darkness gave way to daylight the blistering fire of the 88's on the division's right front denied to them the use of Blue and Yellow beaches. This made it necessary for all the later waves to come in on the northern beaches until the advancing troops could silence these guns. As the attack developed the left combat team was able to advance fairly well intact towards its initial objective, the railroad, where it reorganized and continued to attack. Elements of the right combat team were likewise able to push inland to the railroad but the unit as a whole was slowed down by heavy machine-gun fire and 88's. One battalion, for example, which had to cross a marsh on D-Day, was pinned down in this area during the entire day. As a matter of fact, it was well into the night of D-Day before this unit could establish contact with regiment. Upon establishing contact the situation was clarified and the unit proceeded forward under the cover of darkness. As it advanced, the Germans, who dislike our night movements, gave up some of their best gun positions which had been veritable strongholds during the day. Also the reserve RCT had been landed but as yet had not reached the front lines. Thus at the end of D-Day the 36th Division, which had never experienced the reality of war, had made a very commendable and successful landing on a hostile shore.

Closer investigations of the events of D-Day bring out additional points of interest. First, there is the question of employment of armor in invasions. At Salerno nine medium tanks were launched in the sixth wave. Of this number eight were successfully landed, as the ninth, which was the company commander's, was destroyed aboard an LCT by a direct 88-mm hit. These tanks knocked out five German tanks and an unknown number of infantrymen, and pushed inland to secure a river crossing before the infantry could arrive. In addition, the fact that tanks can be used as a substitute for artillery until the latter has arrived, and that the presence of these tanks has a very stimulating effect on the attacking in-

fantry, leads the writer to believe that tanks, either light or medium, should be landed in the first, second, or third wave.

Secondly, the routing of a German tank attack by direct artillery fire is noteworthy. The 36th Division used a tank warning system by which division, division artillery headquarters, the artillery battalions, the attached tank destroyers, and division reconnaissance were tied together on a radio net. In an unusual situation which placed the division CP near the front lines, the personnel of this headquarters spotted a group of German tanks which threatened the north flank of the division. As these tanks approached, division radioed elements of the artillery which were on their way up from the beaches. Without hesitation the guns were speedily brought forward and positioned along the axis of advance. When the Germans were about 300 to 400 yards away the artillery opened up with direct fire and completely destroyed five tanks and put the rest to flight. In this incident the enemy showed no evidence of the tank teamwork that he had demonstrated in earlier action at the beaches. One example of this teamwork or overwatching of one tank by another not only demonstrates this point but also brings to light the heroic action of an American infantryman. As German tanks attacked the on-rushing Americans, this soldier leaped upon the lead tank in order to drop a hand grenade into the partially opened turret. As he did this, a tank in the rear which was covering the lead tank opened up with its machine guns and mortally wounded this hero.

In the meantime, the British, who had enjoyed initial successes, penetrated as far east as Battipaglia which they captured. Later, however, a German counterattack forced them to withdraw and, as will be pointed out, effected a change in the Fifth Army plan.

On D+1, the 36th Division was again on the move and by this time had committed its reserve RCT. It was now advancing with three RCT's abreast and had secured the high ground south of the Calore River in the vicinity of Altavilla as well as that in the Ogliastro area. As can be seen from the sketch (Figure 2), this front extended over a distance of twenty-eight to thirty miles.

Also on D+1, elements of the 45th Division were landed. The initial RCT from this division was ordered into position between the Sele and Calore Rivers. It was the army's plan to hold the one remaining RCT(-), which was loaded as battalion combat teams, as a floating reserve, to be used as a flanking force. However, the situation had developed sufficiently by late afternoon of D+1 to indicate the need for this RCT(-) in the gap which existed between the American left flank and the British right flank. Enemy pressure on the British front had prevented our ally from pushing south to the Sele River and capturing Ponte Sele which was their objective.

Therefore it was necessary to change the corps boundary from the Sele River to a line extending generally from a point 2,000 yards south of Battipaglia on Highway No. 18 through the high ground just west of Eboli. This, of course, extended the American front by some five or six miles and subsequently resulted in the thinning out of our forces to cover this extended front. Thus, with the mission now determined, the last element of the army reserve had been committed. As it was after dark when

across it had been successfully blown by the enemy, it was essential that the engineers complete these bridges without delay.

On the left flank of the corps an RCT, 45th Division, was pushing forward north of the Sele River towards Eboli but was stopped by night at a point opposite Persano, a village of some fifteen buildings. Another RCT, also from the 45th, had advanced in the gap between the rivers past Persano and was approaching Ponte Sele. For an unknown reason this



FIGURE 2.

the RCT (-) had completely unloaded, the unit bivouacked for the night before reaching their forward position. German troops moved into this area during the night and heavily resisted its advance the following day.

At dawn of D+2, all elements of the 36th and 45th Divisions were making progress toward the beachhead. A trestle bridge had been constructed across the Sele River on Route 18 by armored engineers. The railroad bridge, which was parallel and adjacent to the highway, was being prepared for motor traffic and was available for use by night. This river was a critical feature, as it crossed the main highway which carried virtually all north-south traffic. As it was unfordable and the only bridge

unit failed to mop up resistance in Persano and later suffered casualties on its flank from the enemy who were present there.

Along the 36th Division's front, further gains were made despite the fact that the terrain was difficult and the fighting heavy. The towns of Altavilla and Albanella were captured. A combat engineer battalion which had been attached to the 36th Division was withdrawn and moved north of the Sele River toward Battipaglia to increase further the effort to establish contact with the British on our northern flank. This battalion was engaged by the enemy south of Battipaglia in the vicinity of Highway 18 and was unable to gain this contact.

On D+2, indications that the enemy was prepar-

ing to launch a counterattack down the Sele Valley began to appear. In the first place, troops were being withdrawn from the front of our southern flank and were moving northward. Secondly, the terrain in this area was most suitable for such action by the enemy, and lastly, the larger part of the enemy's artillery was concentrating in this vicinity.

D+3 found elements of an RCT of the 45th Division at Ponte Sele, the corps objective. The remainder of this combat team was likewise generally well forward. However, adjacent units across both the Sele and Calore Rivers were not as far advanced and, as a result, vigorous local counterattacks against the flanks of this unit were inflicting relatively heavy casualties. Later in the day this unit was ordered to withdraw from this sector and to proceed north of the Sele River to bolster the defenses of the gap which still existed.

With increased indications that the enemy would counterattack down the Sele Valley, the corps commander directed that a defensive position be taken up. This defensive line ran as shown in Figure 2. By this time the RCT [(a) in Figure 2] had started its withdrawal and was marching toward the position indicated on the sketch. Also the right combat team of the 36th Division [(b) in Figure 2] was withdrawn from its position on the southern flank. The enemy had pulled his forces out of this sector so this unit was directed to side-slip adjacent troops in order to take up position on the left flank of the 45th Division. All elements of this division would be north of the Sele by morning. Movements were to take place the night of D+3—D+4. The Sele River was designated as the boundary line between divisions.

In the late afternoon the expected attack on the American front materialized with its main blow down the Sele Valley. From reports and from personal observations, it seems that the enemy was attacking with company combat teams, made up of infantry, five or six tanks, and several 88-mm guns. These combat teams were drawn from the two Panzer divisions and one motorized division which confronted the army at this time. During the attack the Germans made extensive use of smoke, Very pistols, and pyrotechnics. The primary cause for this employment was the psychological effect produced on our troops, as this display of "fireworks" created an appearance of large numbers. A secondary reason was that certain signals signified local successes, such as the attainment of an objective by a platoon or company. Although this attack enjoyed a certain amount of success, it was never a serious threat to the Fifth Army's beachhead, as it did not possess the punch to sustain its drive. The fact that a small group of infantry with a few tanks did penetrate the sector between the rivers far enough to reach their confluence caused a certain amount of alarm in that vicinity. As a result, there was a general withdrawal during the night of D+4—D+5. The new defen-

sive line was one and a half to two and a half miles in rear of the original one. The naval fire from the warships lying off shore was particularly heavy during this night and undoubtedly was very effective against the enemy's rear installations.

The following day, D+5, found the situation in a stalemate. The impetus of the enemy attack had been appreciably reduced while our own forces were reorganizing. In some localities, particularly in the mountainous regions south of the Calore, the task of reorganizing was exceedingly difficult, as night movements over mountain trails had dispersed the troops. Most of the action that took place during the day consisted of friendly artillery concentrations which kept the enemy dug in. Also the 4.2 chemical mortar battalions laid down several barrages of white phosphorous. The Hun has a particular dislike for this ammunition and was none too anxious to advance against it. The naval guns continued to throw their heavy projectiles far in the enemy's rear areas. During the afternoon the remaining RCT of the 45th Division was landed and was placed in army reserve near Paestum.

On D+6, General Alexander arrived and placed all air in North Africa, Sicily, and Malta at General Clark's disposal. In addition, battleships joined the naval force. News reached Fifth Army Headquarters that the advance guard of General Montgomery's Eighth Army was now approximately two day's march from General Clark's right flank. Also, by this time the improved airport near Paestum was made available to cargo planes. Heretofore it had only been used by fighters.

The Germans now were preparing a defensive position which was generally between our old and new MLR. At this time the American Corps G-2 estimated that the enemy's strength in the pocket between the rivers was one company of infantry plus fifteen tanks. The source of this information was a patrol of the 45th Division which was operating in this sector. No attempt to launch a counterattack was made.

On D+7, the writer was aboard an LST for the return trip. News reached the ship that the counterattack had been launched and that a line through Persano had been secured. A battalion combat team had been given the mission of mopping up the enemy forces between the rivers, which it successfully accomplished.

To recapitulate the tactical events, it can be seen that the gap which existed between the British and American forces was the key to the situation. This gap necessitated a reshuffling of forces at a time when the corps was already on an overextended front. If this gap had not existed, the corps could have sustained its initial drive and perhaps averted the withdrawal which delayed the accomplishment of the mission. It completely drained the corps of reserve strength and thereby increased our vulnerability.

The Germans on this front were an ever-constant threat until the gap was closed.

To support such an operation, literally thousands of details must be planned and coordinated. The supply procedure divided itself into three distinct phases, i.e., the preparatory phase, the initial assault phase, and the continuing maintenance phase. The first phase included the coordination of all administrative planning and requirements. It covered equipping units, storing ports of embarkation, and loading assault convoys in accordance with Fifth Army plans. The ASF was responsible for these functions as far as American troops were concerned, and the British corps for the British troops. In the second or assault phase, responsibility rested with task force commanders for receiving, stocking, and issuing supplies over captured beachheads. The commanders effected this through the beach groups but used organic service units to supply combat troops. This phase covered the period from D-Day to the capture of Naples. For the final or continuing maintenance phase, the army assumed administrative responsibility through their base area installations. The main duties of this section consisted of controlling and operating ports, rail transportation, base depots, and fixed-bed hospitals.

Based upon experiences at Salerno, the fact was well established that the key to the defense of a beachhead lies in counterattack. To add speed and punch to these blows, it is most important that the attachment of armored forces present be determined by terrain. With suitable ground over which to fight,

tanks can tremendously influence the course of the battle. Conversely they are practically useless if the terrain is unfavorable for their employment and they should be shifted to another sector in order to realize their striking power. In establishing a beachhead the fighting is unusually fierce on both sides, and as a result the action is fluid. By mathematical reasoning the side which launches the last successful counterattack is victorious. During the time when your forces are reorganizing for the next attack, your plans must adequately provide for the enemy's counterattack which is sure to come. This period, of course, is most vital, but if troops are trained in "rubber-band tactics" they will bend but not break. When the enemy has expended his force, the rubber band snaps back and drives deep into the enemy's rear. There is no better team than the infantry-tank one to provide this action. Another point that is vital to the success of this type of operation is the ability of commanders to sense what is on their front. G-2 furnishes some information along these lines, but the real tactician has a sixth sense that completes the picture.

In conclusion, the writer wishes to take this opportunity to congratulate the entire Fifth Army on its well planned and executed success in one of the most difficult military operations, the landing on a hostile shore. The Army Commander and his staff deserve a great deal of credit, particularly in view of the fact that shipping problems limited the number of troops in the initial expedition whose objective was Naples.

The commander acquires the confidence of his troops by means of the qualities that he displays under all circumstances and especially in battle—courage, coolness, promptness in decision and action, clarity in decision, and firmness in difficult situations. He wins their affection by the equity and benevolence he gives proof of in the exercise of his command, by the care which he takes in assuring the well being of his men, and in rewarding their meritorious acts. He must in all things and at all times serve as an example.

Regulations of the French Cavalry, 1931. Quoted in
Ejercito (Spain) September 1943

Army Classification

LIEUTENANT COLONEL CHARLES L. MALONE, *Infantry*
Commanding Seventh Service Command Reception Center No. 1773
at Fort Leavenworth, Kansas.

AT THE time of our entry into the war there were within the country's industrial and business systems skilled artisans whose training, aptitudes, and abilities were needed not only by business and industry but also by an Army which was girding itself for a desperate fight with a highly skilled and specially trained enemy force. During the initial stages of mobilization the problem was a comparatively simple one, for within our vast reservoir of man power were available men who possessed the skills needed to supply both industry and the Army. However, a rapidly expanding Army, and an industry whose expansion was commensurately rapid, quickly reduced this available supply. The problem was no longer one of putting men to work in industry or the Army. It now became necessary to make wise distribution, for to draw away from industry all of the essential skills would be suicidal. It was urgent, however, that the Army obtain certain skills.

Out of this acute need for apportioning and channeling skills to the points of greatest demand, and consequently greatest service, has grown the present Army Classification System. Specifically, this system accomplishes its purpose by a continuing process of testing, individual interviews, classification, and assignment, having as its origin the Induction Station and Reception Center where the new soldier reports for active duty. At the Reception Center, after he has been fed, quartered, and uniformed, he goes to the Test Building, where the process is initiated, and he is given three tests. These are: the Army General Classification (A.G.C.) test, the Mechanical Aptitude test, and Radio Operator's Aptitude test.

These tests are designed to test abilities and aptitudes. The Army General Classification test is intended to measure with considerable accuracy the soldier's mental alertness and his ability to think rapidly and accurately under stress.

The Mechanical and Radio Operator's Aptitude tests are, as their names indicate, tests of aptitude in these two fields. Their objectives are reasonably reliable measurement rather than meticulous accuracy. It is now proven, within practical limits, that these tests accomplish their purpose.

Following the completion of his tests the new soldier goes to the Classification Section where he is carefully interviewed by an experienced interviewer in the privacy of booths constructed for this purpose. It is here that the soldier is put at ease and impressed with the necessity for providing the interviewer with a complete history of his background. It is explained to him that this information he is about to give is

one of the most important steps in "Processing," and that not only is this for the benefit of the Army but also for his own benefit.

The selection of personnel to act as interviewers is of prime importance to the success of this vital part of classification. This selection cannot be made immediately and comes only after a tryout period during which the potential interviewer is under the closest observation. The results he obtains from the interview, plus his manner in conversing with the new soldier, as well as his personality, are all matters that enter very strongly into any decision to give him such an important assignment. Only men who have a proven capability for this type of work are retained by the functional classification section.

The interviewer is under the constant observation of the Classification Officer and the Section Chief. These men are quick to note any differences in attitude that might tend to interfere with achieving the utmost from the interview. For the most part these carefully selected interviewers are personnel men with civilian experience in large industrial establishments; some are teachers and lawyers; almost all are college graduates. They are experienced conversationalists and their knowledge of the psychology of dealing with people, plus a natural interest in their assignment, serves to glean from the new soldier all necessary information vital to proper classification.

The interviewee need not feel slighted because he is interviewed by a private when the man in the next booth is interviewed by a sergeant. The rank of the interviewers ranges through all of the enlisted grades. The chevrons on the interviewer's sleeve by no means indicate his degree of skill for the assignment, but rather are quite probably an indication of seniority in the section.

Interviews are, in essence, skilfully directed conversations. That is, the interviewer encourages the man to tell about himself. During the course of the conversation the discussion is directed toward such matters as family background, education, civilian occupational experience (main and secondary), interests, hobbies, and other subjects which will provide an insight into the history and character of the new soldier. The interviewer is constantly on the alert for any unusual interest or ability which might be utilized by the Army. For instance: Private John Jones mentions, possibly very casually, that he has ridden a motorcycle. Immediately the interviewer is interested and conveys this fact to Private Jones. It may develop that he has had very little experience and it may, and quite frequently does, develop that Private

Jones is an expert motorcyclist. In this case the Army has need for his skill. This might not have been discovered had the interviewer not turned an interested ear to Private Jones' life story. To cite an actual case: it developed, during the course of a recent interview at the Seventh Service Command Reception Center located at Fort Leavenworth, Kansas, that the soldier being interviewed was a pigeon fancier and had raised and trained pigeons for a number of years. This was on a hobby basis and was mentioned somewhat reluctantly by the soldier. To his utter amazement he was informed that he possessed a skill for which the Army had been searching diligently. It is understood that this man is now in charge of a flight of carrier pigeons in an overseas theater.

This and many similar cases which might be cited serve to illustrate the method employed by the interviewer to obtain the data by means of which the Army sorts, selects, and classifies its man power.

The interviewer constantly strives to obtain factual information which, when recorded, will be unbiased by either the Army's needs or the soldier's personal desires. This information is then recorded on a form known as the Soldier's Qualification Card. This card becomes an integral part of the soldier's record, and accompanies him throughout his military career. In thirty-two compact items are listed facts which, when evaluated by the classifier, present a dependable indication as to the place in which the soldier is best fitted to serve. During the past two years the Soldier's Qualification Card has been developed into a concise but complete statement of the most significant facts concerning the soldier and his skills and abilities which may be utilized to the greatest advantage by the Army.

Having completed his tests and interviews, the soldier is now ready to be classified. This part of the sorting and selecting procedure, while requiring less time than either of the others, is, if possible, more important. The fact-finding having been completed, a decision must now be made. Upon this decision the Army and the soldier must rest their hopes of developing an efficient fighting machine possessed of the high type of morale necessary to win victory. If the classifier renders an erroneous decision from his analysis of facts presented on the Qualification Card, then test scores, work histories, and all other collected data have become wasted effort.

If he is to render a valid decision, the classifier must take into consideration all of the evidence. He cannot be content to say, "This man has been a student all his life and therefore has nothing in the way of skill or experience to offer," nor can he decide that because another man has worked at unskilled occupations he is of no particular use. The student may have a hobby, as, for example, photography, which has given him a skill very badly needed, or the laborer may have a high mechanical

aptitude score which indicates training possibilities not to be overlooked. Furthermore, this is the point at which indicated interests and personal desires are to be considered.

Informal trade tests, in a number of skilled trades, are available to assist the classifier in rendering a valid decision. These tests require but a few minutes to administer and provide a reliable and fairly accurate measure for ascertaining how well informed the soldier is in any trade in which skill is claimed. After carefully analyzing all available information, the classifier renders his decision. This is recorded on the Qualification Card in the space provided for that purpose. The classifier's decision takes the form of a recommended assignment. For example: Truck Driver, Cook, Administrative and Technical Clerk, etc.

It should be borne in mind that the classifier's decision is a recommended or tentative assignment only. His recommendation is considered by assignment personnel in assigning the soldier to the arm, branch or department which will be able to make the best possible use of his skills.

Leaders in the classification system have developed methods of job specifications, each of which is designated by a number and given an exact title which is invariably used. The job specification "Cook," for example, is designated by the specification serial number "060"; "Auto Mechanic" is designated by the specification serial number "014." This system of specifications and relative serial numbers serves to expedite the assignment and all matters pertaining thereto, and at the same time eliminates the necessity of sending detailed and lengthy messages.

Early in the process of developing classification procedures it was noted that two broad types of skills must be recognized. There are, first of all, skills which can be used directly by the Army. Also there are skills which are almost entirely military in nature. For example, an auto mechanic can, with a very limited amount of training in army methods, step from a commercial shop into an army motor maintenance unit. There are, however, no civilian counterparts for such army jobs as machine gunner, range finder, etc.

In order to distinguish between these two fairly distinct types of skill, classification experts have divided the specification serial numbers into two distinct groups. Those numbers falling below 500 are assigned to civilian jobs which are nearly identical to army jobs. Those numbers from 500 to 1000 are applied only to strictly military jobs. The specification serial number serves another definitely important purpose. Their use by classification personnel insures that no man or his skill will be "lost in the shuffle."

After the classifier's recommended assignment, the soldier's Qualification Card goes to a little ad-

vertised but very important group of classification personnel. This is the coding group. About the perimeter of the Qualification Card is a number of small holes. By punching out the proper holes the coding group produces a "code pattern." This pattern makes possible the use of a selecting device by means of which it is possible to select from several hundred those cards of men who are qualified auto mechanics, radio repairmen, or men having any desired Army General Classification score. In fact, cards may be

AVAILABILITY REPORT

Reproduced below is Paragraph 2 B of a typical TWX message from a Reception Center to the headquarters of the Service Command in which it is located.

The whole report consists of seven paragraphs broken down as follows:

Par. 1. General information concerning classification, assignment, or shipment.

Par. 2. White, general assignment, including ERC, Volunteer Paratroopers, Air Force "SPECS" (Specification Serial Numbers), S.T.U. graduates.

Par. 3. Same as Par. 2, except colored personnel.

Par. 4. Conscientious objectors.

Par. 5. Limited Assignment men—white and colored—ERC, etc., as in Pars. 2 and 3.

Par. 6. Advanced ROTC Students in ERC.

Par. 7. White and colored—ASTP Candidates who passed the A-12 test, Joint Army and Navy Preinduction Test given last April to high school students.

2B 013/0/2/2 014/10/0/10 030/0/1/1 037/1/2/3
055/1/3/4 ... 056/1/1/2 ... 059/1/1/2 ... 064/1/0/1 ... 081/0/1/1
090/0/1/1 ... 097/0/1/1 ... 101/0/2/2 ... 103/0/2/2 ... 113/0/1/1
114/0/1/1 ... 120/1/2/3 ... 128/0/1/1 ... 129/2/0/2 ... 144/1/0/1
162/1/1/2 ... 164/2/0/2 ... 165/0/1/1 ... 168/0/1/1 ... 169/1/0/1
190/0/1/1 ... 199/1/1/2 ... 220/0/1/1 ... 244/0/1/1 ... 245/5/7/12
248/2/0/2 ... 252/0/1/1 ... 255/0/1/1 ... 256/0/1/1 ... 268/0/1/1
274/0/1/1 ... 283/0/1/1 ... 301/0/4/4 ... 303/0/2/2 ... 315/1/1/2
316/0/2/2 ... 324/0/5/5 ... 339/0/1/1 ... 341/0/2/2 ... 344/0/1/1
345/1/6/7 ... 350/0/2/2 ... 356/0/2/2 ... 359/4/4/8 ... 356/0/1/1
374/2/0/2 ... 383/0/1/1 ... 390/0/1/1 ... 403/0/1/1 ... 405/0/1/1
410/1/1/2 ... 411/0/1/1 ... 433/0/1/1 ... 440/0/2/2 ... 449/0/1/1
452/1/0/1 ... 462/1/0/1 ... 478/0/1/1 ... 487/0/2/2 ... 488/0/3/3
489/0/1/1 ... 502/2 ... 505/1 ... 521/18 ... 673/1 ... 677/1
696/1 ... 710/1 ... 727/1 ... 804/1 ... 816/1 ... 820/2 ... 824/1
835/2 ... 861/1 ... 870/1 ... 890/1 ... 971/1 ... 998/1 ... AF
SPEC 256/1/0/1 ... 257/0/1/1 ... 519/1 ... 555/4 ... 647/1
747/1 ... 826/2 ... VOL PARA 144/1/0/1 ... 345/1/0/1 ...
STU 144/1/0/1 ... 162/0/1/1 ... 194/0/1/1 ... 199/0/1/1 ...
244/1/28 ... 244/1/2/3 ... 245/2/0/2 ... 329/0/2/2 ... 345/1/4/5
359/0/1/1 ... 521/8 ... 590/7 ... TOT 212 ... TOT PAR
TWO 214

RC STR LESS FUR 1321

Interpretation of above figures: 013/0/2/2 means Diesel Mechanics (013) are available for assignment as follows: none skilled; 2 semi-skilled; total 2. 014/10/0/10 means Auto Mechanics (014) are available for assignment as follows: 10 skilled; none semi-skilled; total, 10. 037/1/2/3 shows that 1 skilled and 2 semi-skilled Butchers are available for assignment, a total of 3.

FIGURE 1.

selected for any one or more of the items recorded upon them. In this way, classification can guarantee that each of the millions of men in the Army will retain his individuality during his entire army career.

Classification having been completed, there remains the important task of assigning the soldier to a Re-

placement Training Center, combat unit, or other installation which will be able to make the best use of whatever skill, training, or aptitude he possesses.

Each morning the Reception Center sends a teletype message to the Headquarters of its Service Command. This message, known as an availability report, lists by specification serial number each man who completed classification on the preceding day (see Figure 1.)

While classification has been proceeding at the Reception Center, requisitions for men possessing required skills or aptitudes have been arriving at The Adjutant General's Office in Washington. These requisitions originate at Replacement Training Centers, field units, and other installations needing personnel to replace losses to the unit caused by the completion of training, by overseas shipments to theaters of action, by transfers to meet technical needs, etc.

On the basis of such requisitions The Adjutant General's Office directs the Assignment Officers of the various Service Commands to send men of certain classifications to specific units in the field or to designated Replacement Training Centers. Let us illustrate.

This morning the Seventh Service Command Reception Center located at Fort Leavenworth, Kansas, has reported to Headquarters of the Seventh Service Command that ten skilled auto mechanics are available for transfer (014/10/0/10 in par. 2B of Figure 1). During the day The Adjutant General's Office directs the Service Command Assignment Officer to

EXTRACT OF ASSIGNMENT REPORT

From Service Command to Reception Center

The following is a portion of Paragraph 2 of a TWX message from a Service Command Headquarters to a Reception Center.

The Assignment Report is divided into seven paragraphs corresponding to those in the Availability Report.

REQ 4918 ASGN INF RTC CP ROBERTS CALIF ASTAB
DEC 26-29 ... 2 B 014/10/0/10 056/0/1/1 ... 199/1/1/2
268/0/1/1 ... 274/0/1/1 ... 324/0/3/3 ... 339/0/1/1 ... 350/0/1/1
374/2/0/2 ... 390/0/1/1 ... 502/0/2 ... 505/1 ... 710/1 ... 816/1
820/2 ... 824/1 ... VOL PARA 144/1/0/1 ... 345/1/0/1 ... STU
199/0/1/1 ... 244/1/2/3 ... 245/2/0/2 ... 345/1/4/5 ... 521/8M
590/7 TOT 59

Interpretation of above: Requisition 4918; assign the following to the Infantry Replacement Training Center, Camp Roberts, California; arrange shipment to arrive between December 26 and 29; paragraph 2 B of Availability Report.

FIGURE 2.

assign twenty skilled auto mechanics to a Replacement Training Center in California. Upon receipt of The Adjutant General's order, the Assignment Officer at the Service Command Headquarters turns to his morning availability reports. Here he is advised by the Assignment Officer at the Reception Center that ten of the needed men are available at that station. It is likely that he will have been advised that the

remaining ten men needed to fill the requisition are available for assignment at other Reception Centers in his Service Command. In any event he will direct a teletype message to each Reception Center which has reported auto mechanics available, instructing that they ship their available auto mechanics to the requisitioning Replacement Training Center until the need has been met (014/10/0/10 in Figure 2).

In the event auto mechanics in sufficient number to fill the requisition have not been reported available, the Assignment Officer at the Service Command Headquarters will note shortages. On the following day, or as soon thereafter as possible, these shortages will be made up by subsequent requisitions for shipments from Reception Centers.

The question is occasionally asked: Why is this complicated system necessary? Cannot the same ends be accomplished by more simple and direct methods? It is probable that the objectives of selection and assignment could be achieved by less complex methods. The task, however, involves more than simply selecting and assigning men. The problem is one of building a highly skilled Army in the shortest possible time.

This problem means that a large portion of the skills needed must be found among men just entering the military service. By careful classification, these skills are being found and training periods are thereby shortened or eliminated entirely, with a resultant saving of precious time—time that has been saved for both the trainee and the instructor. Furthermore, many of the skills required by the Army today are on a level which can be reached only after many years of training and experience. A relative additional saving has been in the form of equipment. The present classification system has saved the Army not only many millions of man-hours in training time but also has made possible the use of much necessary equipment at the front that might otherwise have been uselessly expended for training effort. Careful assignment has insured that needed skills, discovered by interviewers and classifiers, are channeled into the places where they will best serve the whole war effort.

Another considerable factor closely allied with and dependent upon proper assignment, once classification has been completed, is morale. The man who is assigned duties that are in line with his ability, the work for which he has been trained and in which he is experienced, finds adjustment to army life much easier. Because of this fact he is a much happier soldier and more efficient in the performance of his duties than he would be if assigned to some job which is entirely new and strange. This contentment with his army duties reflects on the home front morale also. Therefore, though not always possible, it is highly desirable that the proper assignment be made.

Numerous other advantages of the present system of classification and assignment could be cited. It is

believed, however, that those already discussed justify the additional effort involved.

Personnel engaged in classification are probably more keenly aware of short-comings of the system than are any other members of the armed forces. Glaring cases of misclassification and misassignment are constantly being cited. It cannot be denied that many such cases are real and do exist. It is also true that many are entirely unfounded.

Let us examine a case of the type most frequently cited. It is reported that Henry Smith who was the best machinist in his community has been assigned to the Ordnance Department. Henry had hoped to get into the Quartermaster Corps, for he imagined that the Quartermaster operated all of the machine shops. Naturally when Henry was assigned from the Reception Center to an Ordnance Replacement Training Center he felt that the Army had let him down—had completely ignored his skill. And also quite naturally he told the folks at home that army classification was a farce. In a few weeks, however, when he finds himself in an ordnance shop, somewhere in the Army, operating the same type of machine he has operated at home, he is too busy and too contented to “take-back” all the uncomplimentary things he has said about army classification. So the story of Henry Smith’s erroneously reported misassignment goes its rounds, uncorrected.

A quite different type of case is of common occurrence. A man who has for years been a successful and well-paid bookkeeper enters the Army. He has a feeling that keeping books is rather a dull and uninteresting job. So, during his interview, he very carefully avoids any reference to his experience in this field. In this case he has very little civilian experience to report and is, consequently, classified as a non-specialist. He probably will find himself assigned to a type of work for which he is totally unfitted. Such a man is almost sure to feel that army classification has failed in his case.

An infantry company commander, for example, finds in his organization a man mentally and physically unfit for any duty in his unit. In such a case, the company commander is required to report this man as misassigned. This report inaugurates a search by assignment personnel in the division assignment office for a place into which this man may be fitted. Such cases are constantly being brought to light and corrected through reclassification.

It is recognized that army classification is complex. However, it is faced with the necessity of accomplishing a complex task. The system has made great strides and achieved unexpected ends. It has come a long way in a comparatively short period of time, especially when considered in the light of the simple and direct methods of the first World War. The constant effort to improve classification will serve to eliminate any present weaknesses.

Tactical Air Division

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A NEW element in the Army Air Forces chain of command is the Tactical Air Division. Its name implies a large unit connected in some manner with the employment of aviation in conjunction with ground operations. Just where does this unit fit into the scheme of things? Why was it formed? Of what is it composed? What are its functions? And finally how does it operate? A satisfactory answer to these questions should present a clear picture of the Tactical Air Division.

Experience gained from actual combat leads to modification of the concepts for the employment of the ground, air, and naval forces. Consequently these modifications necessitate changes in the organization of the units of the several forces. These changes very often result in additional responsibilities being placed upon the old elements or a reassignment of responsibilities to new elements especially created to handle new functions. The latter has happened in the case of the Army Air Forces.

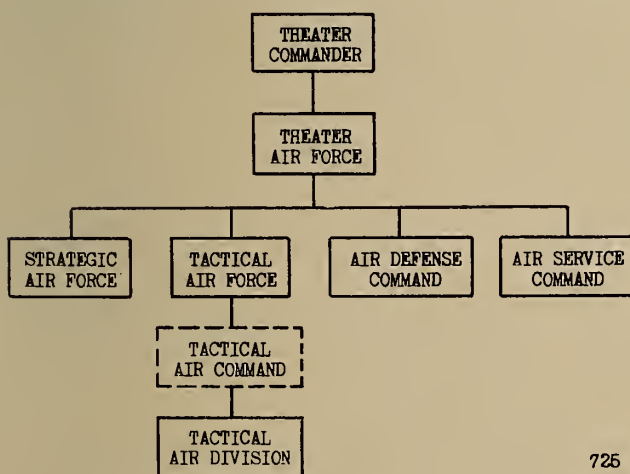


FIGURE 1.

The straight line functions of the Bomber Command, Fighter Command, and Air Support Command as delineated in the pre-war Field Manuals have been altered and revised to meet the demands of combat into the Strategic Air Force, Air Defense Command, and Tactical Air Force respectively. Field Manual 100-20 clearly explains the new concept and also the functions of these reorganized elements of the Air Force. Reiteration here is therefore unnecessary. Figure 1 shows this new organization.

The subject at hand, however, is the Tactical Air Division. Where does this unit fit into the picture? Figure 1 shows that this unit is a subordinate part of the Tactical Air Force. It is, in the greater majority of instances, the next subordinate unit in the Tactical Air Force. The Tactical Air Command can be dispensed with very briefly by stating that this

unit will be formed only after the size of Tactical Air Force is so great that it can no longer control effectively the divisions which are under its command. The fact is now established that the Tactical Air Division is now the subordinate unit of the Tactical Air Force. The next important question is why was it formed? To answer this an understanding of the purpose of the Tactical Air Force is necessary.

The Tactical Air Force has the responsibility of providing the air assistance required by the ground forces in a theater. Assistance covers a multitude of responsibilities. First, it includes gaining and maintaining the degree of air superiority necessary to remove the threat of air attack on friendly air and ground installations and further to permit freedom of movement of our own forces, both air and ground. Second, it has the responsibility of securing information for the air and ground forces. Third, it must be able to provide air attacks on vital ground targets. Fourth, it must provide for the air defense of the combat zone. To accomplish these ends, an organization was necessary which could render this assistance as expeditiously and as efficiently as possible. In creating the new organization, due regard was given to the immutable rules for employment of air power—centralized control, flexibility, and employment in mass. The Tactical Air Force was provided means in the form of bombardment aviation (medium, light, and fighter), fighter aviation, reconnaissance aviation, and a mobile Aircraft Warning Service with its companion ground-controlled interception equipment.

The staff of the Tactical Air Force has the responsibility of planning and coordinating its operations jointly and concurrently with the staff of the ground force, since the plan of operation of the two dovetail and provide a maximum effort. In a theater where the ground force employed is small (a field army or smaller) and the Tactical Air Force is correspondingly small, the Tactical Air Force staff plans the operation and controls the elements of its force with no intermediate staff other than the tactical wings or groups. However, in a large theater wherein a group of armies is employed and the Tactical Air Force is correspondingly large, experience shows that one staff can not accomplish the detailed planning. Because of this, the Tactical Air Division was formed. The number of Tactical Air Divisions is determined in terms of a Tactical Air Division operating with each field army. Such organization provides another staff having joint responsibility with an army staff in planning jointly and concur-

rently operations directed by the orders from the respective higher air and ground commanders. (See Figure 2: the term "Army Group" used herein may be the staff of the ground force commander.)

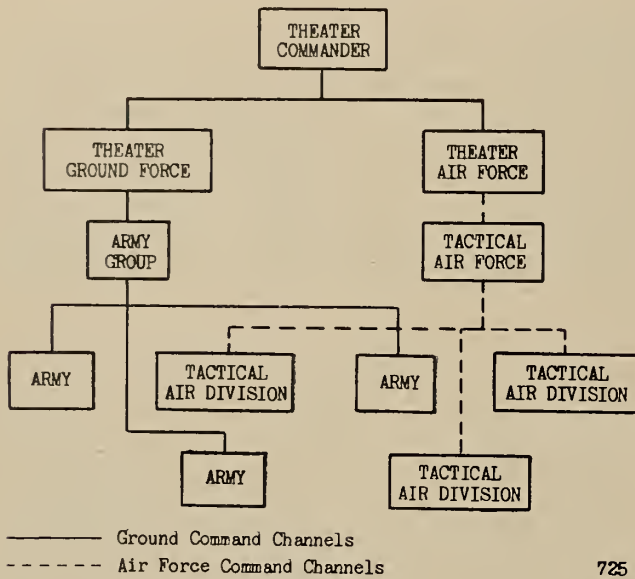


FIGURE 2.

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Before proceeding it must be stated, as reiterated in FM 100-20, that the Tactical Air Force and the ground force are co-equal and interdependent. The field army and the Tactical Air Division are also co-equal and *interdependent*. The ground does not

command the air nor the air command the ground. The Tunisian, Sicilian, and the present Italian campaigns give evidence of the soundness of this relationship. Perfect coordination of planning by the two staffs has been and can be achieved. The Tactical Air Division (TAD) was formed, then, to meet the demands of combat for an organization which had a staff capable of planning air operations concurrently with the staff of the field army, and actually operate the equipment assigned to it in the furtherance of these plans.

COMPOSITION OF TACTICAL AIR DIVISION

The Tactical Air Division has the same responsibility for assistance to the field army with which it is associated, as the Tactical Air Force has to the ground force. The Tactical Air Division is assigned a portion of the equipment of the Tactical Air Force. It normally has fighter-bomber aviation, fighter aviation, tactical reconnaissance aviation, and a tactical control group under its control. The Tactical Control Group is that unit which has the personnel and equipment to provide and maintain the Aircraft Warning Service, air liaison units to subordinate units of the army, and the air control of all aircraft within its area of operation as directed by higher headquarters. Figure 3 shows a complete breakdown of the Tactical Air Division.

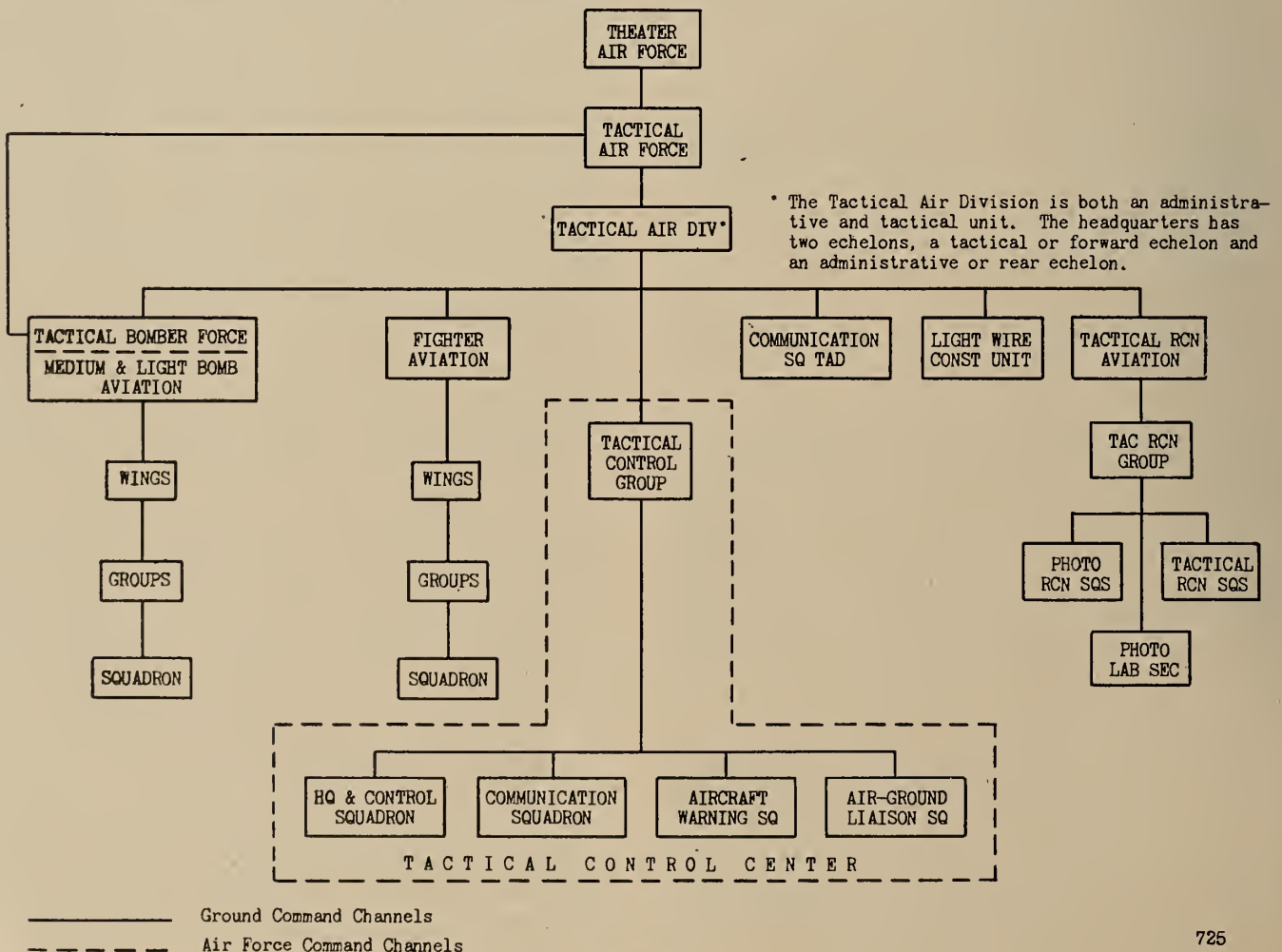


FIGURE 3.

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FUNCTIONS OF TACTICAL AIR DIVISION

The functions of the Tactical Air Division can be summed up:

1. To provide the air assistance to army similar to that rendered by Tactical Air Force to the ground forces in a theater.
2. To plan air operations in conjunction with the planning of ground operations of the army so that the operations of both forces are complementary and mutually supporting.
3. To operate the elements under its control in the furtherance of these plans.
4. To provide liaison to army and its subordinate units for exchange of information and furnish rapid means to subordinate ground units for requesting information and attack missions.
5. To provide an effective means of controlling tactical air operations both offensive and defensive within its sector of responsibility.
6. To provide the communication facilities required for the accomplishment of the foregoing functions.

To tie all of these functions together, understanding of how equipment available to TAD is utilized is essential.

It might seem from the preceding discussion that the immutable rules for employment of air power—centralized control, mass employment, and flexibility—have been violated by this organization. They very definitely have not been violated and that fact should be made clear at this time. The Tactical Air Force has complete and direct control of all the aviation under its command. The striking force, known as the Tactical Bomber Force, composed of the medium and light bombardment aviation, is a weapon whose employment is controlled directly by the staff of Tactical Air Force. Its operations are planned as an organic part, and directed by that staff, and no part is permanently assigned to any of the Tactical Air Divisions in the Tactical Air Force. Any or all of the fighter-bomber, fighter, and reconnaissance aviation assigned any one of the Tactical Air Divisions may through planning be allocated to another Tactical Air Division for a particular operation in order to mass the means of the air force behind the main effort of the ground forces. As an example, assume three field armies are operating in the theater, and working with each of these is a Tactical Air Division with one wing of fighter aviation and one group of reconnaissance aviation. The Tactical Air Force after planning with the army group commander decides that one of the armies will make the main attack while the other two execute secondary attacks. From the two Tactical Air Divisions associated with the armies making the holding attacks might be withdrawn the bulk of the fighter and reconnaissance aviation and this aviation might be placed under the operational control of the Tactical Air Division as-

sociated with the army making the main effort. The Tactical Bomber Force would probably be employed behind this effort by the Tactical Air Force staff or placed under operational control for the planned duration of the attack of the Tactical Air Division making the main effort. This Tactical Air Division would then plan for the operations of all this force with the army commander under directives from higher headquarters. Centralized control, mass employment, and flexibility have been rigidly and very effectively maintained.

OPERATION OF TACTICAL AIR DIVISION

To show the operation of a Tactical Air Division, let us use the situation mentioned above, considering that Air Division operating with the field army making the main effort. To discharge the responsibility of joint planning of operations the headquarters of the army and the Tactical Air Division would be located adjacent to each other. By "adjacent" is meant the same tent, or next door in the same building. The two staffs can then plan their operations effectively with maximum liaison and minimum interference. The two staffs become acquainted, and through this close association learn and understand each other's problems. Problems which arise can be solved speedily with due consideration being given the capabilities and limitations of each force. The function of joint planning is fulfilled.

It is through this joint planning that the operations of all components of Tactical Air Division, organic and assigned for this particular phase of the situation, are prepared. These operations include that part of assistance the Tactical Air Division must provide which can be performed through pre-planned missions: gaining the necessary degree of air superiority, securing information, and attacking vital ground targets (isolation of the battlefield stage). The missions of the greater part of Tactical Bomber Force, fighter aviation, and reconnaissance aviation would be prearranged. (It is not desired to create the impression that gaining air superiority is an intermittent process which is begun and stopped at will. It is most definitely a continuing process before, during, and after the ground forces have become engaged.)

Although the greater bulk of bombardment and reconnaissance missions can be prior planned and ordered by the two staffs, there will be instances wherein targets will appear which can not be foreseen and information desired by the subordinate units which also can not be foreseen. The Tactical Air Division must be capable of handling these and must be capable of doing it rapidly. Air Parties are the means employed to handle this. An Air Party is a highly mobile air unit sent from the Tactical Air Division to the corps and divisions within the army with whom it is associated. It has several functions. The Air Party is the liaison agency from the air to the subordinate ground units of the army. It has

the responsibility of advising the unit with which it is associated, but has no authority to render decisions. It is responsible for the exchange of ground information to the Tactical Air Division and air information to the ground unit. It must transmit requests for reconnaissance and attack missions direct to the Tactical Air Division. The Air Party not only meets the demands to handle these unforeseeable exigencies but also it fulfils another of the functions of the Tactical Air Division—liaison to subordinate ground units. An insight into processing of requests from ground units through Air Parties will show another phase of the operations of the Air Divisions.

The request for a mission goes by ground forces channels of communication from the unit making a request to the lowest unit having an Air Party. At this point it is given to the Air Party who transmits it directly to the Tactical Air Division. As an example, if a regimental commander desires a mission he sends his request over the communication channel between division and his unit. If the division has an Air Party, the request is then turned over to the Air Party who transmit it directly to TAD. The Air Party at corps is in the same net and monitors for the corps all messages sent over the net. If the division had no Air Party it would in turn relay the request by the communication channel it has with corps. At corps it would be turned over to the Corps Air Party who would then send it directly to TAD. When the request is received it is examined at Tactical Air Division headquarters and the feasibility of performing the mission is determined. The recommendations and advice of the army staff are considered as to its effect on the existing situation. If it is decided that it is in order and aircraft are available and the air situation favorable to its successful accomplishment, the mission is planned by the Air Division A-3 and ordered. The decision made, whether favorable or unfavorable, is radioed back to the Air Party submitting the request so that the original unit requesting the mission can be informed of the action taken. The system of Air Parties meets the demands for liaison, rapid news for exchange of information between air and subordinate ground units, and rapid means of transmitting requests for reconnaissance and attack missions. This system combined with that of pre-planning will account for the employment of the greater portion of the combat aviation in the Tactical Air Division.

It must be remembered that the Tactical Air Division has still another important function, that of providing the active air defense for the sector in which it is operating. The remaining combat aviation (those fighters reserved for intercept of enemy) is employed for the air defense functions. Let us briefly see how these remaining fighters are employed and this function of air defense fulfilled. In order to

defend any area, information of the approach of enemy air units must be obtained. Also necessary is a provision to control and direct the operations of friendly fighters on these intercept missions. It is here that the Tactical Control Group enters into the picture. The Tactical Control Group, composed of four squadrons as shown in Figure 3, provides the necessary personnel and equipment to operate the Aircraft Warning Service. Sufficient personnel and equipment (ground observer teams, radio direction finding and ground-controlled interception equipment) are included to give advance warning to defend an area normally occupied by a field army. By means of this radio direction finding equipment supplemented by ground observers, the approach of enemy aircraft from all directions can be discovered. As soon as information of the approach of aircraft is determined, this information is radioed to the Tactical Control Center. (This is first time that term has been used in this article—operation, organization, and function of the Tactical Control Center are very similar to that of any one of the Air Defense Centers found along the east and west coasts of the United States, only on a smaller scale.) The personnel at the Tactical Control Center plot the positions as reported. The identification officer having a record of all friendly missions operating in the sector identifies the flight as friendly or hostile. This information is then placed on the plotting board. If hostile, the fighter controller may dispatch friendly fighters in the strength he estimates sufficient to intercept the enemy. The controller having radio contact with the fighters can direct the fighters to alter their course to meet any changes in the course of the enemy. The information at the plotting board is continuous so long as the aircraft are within range of direction finding equipment.

Knowledge of the approach of enemy aircraft is very valuable to the ground units also. If they know the enemy is coming over their area, they can be alerted to take the necessary defensive measures. The fact that the element of surprise has been eliminated will decrease losses sustained by friendly units and increase losses to the enemy. The Tactical Control Center maintains a broadcast channel which flashes information of the approach of enemy air units to the ground units.

To tie in what has been said about the operations of a Tactical Air Division, let us run through what might be a typical mission. The airdrome where a number of enemy fighter-bombers are based that have been harassing our installations has been located. The Tactical Air Division commander decides this should be destroyed and the army commander concurs. The Tactical Air Division staff plans the mission, designating a group of the Tactical Bomber Force to do the job. The route out, the route back, altitude and fighter escort needed, time of attack, etc., are designated. The orders are sent out to the

Tactical Bomber Force and the Tactical Control Center. (The controller at TCC has the responsibility of controlling flight through his sector.) The mission takes off as ordered. As soon as airborne reports begin coming into the TCC and plots are started on the flight, the identification officer identifies it as friendly since he has prior information of time to take off, course to be flown, etc. As the information gets close to the front lines the controller begins seeing plots of a formation of enemy air units which appear to be on a mission to intercept this flight. Although the route to be flown has been designated in orders, the controller has the authority in instances such as this to change the route, in order to have the formation miss the point of interception planned by the enemy. The controller may change course as long as the formation is within range of his radio and direction finding equipment. The mission returns and is again picked up by our observers and radio equipment. Again the flight is identified and permitted to pass through the sector without interception by friendly aircraft. After the units have landed the crews are interrogated and any information obtained by observation of the crews while on the mission is disseminated to the air and ground units who would be benefited. The successful completion of the mission has benefited both air and ground units by reducing the threat of air attack on our own installations, and in addition has been a source of securing information.

It has been shown that the operations of Tactical Air Division are for one purpose—to perform the functions outlined. It operates to render assistance to the army by prior-planned or call-type bombardment and reconnaissance missions. Through the Tactical Control Group warning of the approach of

enemy aircraft is obtained and disseminated. The area is defended actively by intercept missions ordered by the agency of the Tactical Control Group—the Tactical Control Center. This same agency controls the operations of all friendly aircraft operating in the sector. Liaison to subordinate ground units of the army is maintained through Air Parties previously discussed. (These parties come from the Air-Ground Liaison Squadron which is part of the Tactical Control Group.) All the functions, all the reasons for the existence of the Tactical Air Division, have been fulfilled.

SUMMARY

In summary, the Tactical Air Division is the subordinate unit of the Tactical Air Force. It was formed to meet the need of providing a lower unit capable of fulfilling the mission of the Tactical Air Force. It has the duty of assisting the ground unit with which associated—the field army—by gaining the necessary degree of air superiority, securing information, attacking vital ground targets, and defending against air attacks. It plans its operations jointly and concurrently with the staff of the field army—it controls the operations of all friendly aircraft within its sector of responsibility, and finally it provides liaison to lower ground units of the army.

The Tactical Air Division is the result of experience in the combat theaters. Although not operating by this name, similar units are functioning in the theaters where our ground forces are engaged. The fact that it is working today and has proved very successful in the past augurs well for the future when many more Tactical Air Divisions will be performing their functions to their maximum capabilities.

Prize Ships

PRIZE ships have proved a valuable addition to the tonnage at the disposal of the United Nations during this war. Some were captured by the Royal Navy on the high seas, but opportunities of this kind have been few because of the Axis habit of scuttling when in danger.

To date the German, Italian, and Finnish ships seized by the British as prizes number 129, of approximately 450,000 gross tons. Most of the German ships were seized in the United Kingdom at the outbreak of war; about half of the Italian ships were seized in United Kingdom ports. In addition, 196 ships, totalling 829,400 tons, were seized in June 1941 under the United States plan. Axis shipping, which had been sheltering for nearly two years in the United States and South American ports, was then

brought into active service for the Allied cause by releasing an equivalent amount of American shipping for other waters.

Two hundred and three Danish ships in the British service were seized in prize. Their value has been estimated as £6,816,000 (\$27,264,000). Since the invasion of Denmark, they have continued to sail the seas with a large number of their original crews. The Danish ships were requisitioned by the Ministry of War Transport on the understanding that, although seized in prize, they would be returned at the end of the war and the owners paid a hire fee proportionate to the fee paid to British owners for similar ships. Under the American plan, 56 Danish ships were taken over.

Modern Infantry Battle Formations and Tactics of Maneuvering

[Translated for the Command and General Staff School, Fort Leavenworth, Kansas, from a Russian article by Colonel S. Karpinskii, Soviet Army, in *Krasnaya Zvezda* 17 July 1943.]

THE ART of warfare seems to have many contradictions. At times, it may appear that one phenomenon should absolutely exclude the other, and yet they manage to exist side by side and even supplement each other. Such an apparent contradiction confronts the minds of some commanders when they compare the method of tactical maneuvering with the linear battle formations, which are now frequently used. They base their reasoning on a direct analogy: if it is linear battle formation, then it is linear tactics. But if the tactics of maneuvering predominate, where did the infantry get its linear formation?

Maybe it would not pay at all to go into these discussions if there were not observed, in practice, a distinct underestimation of the battle formations introduced by *The Battle Manual of the Red Army Infantry*. "The basic principle of infantry battle formations," states the Battle Manual, "is the compulsory requirement of maximum and simultaneous participation in the battle of both infantry and its fire means from the beginning to the end of the battle." The very nature of these formations, it seems, is not clear to everybody. Some prefer to deal with echeloned battle formations, although experience shows that now they can be useful only in the breaching of fortified areas and strongly fortified positions, and are not very effective in attacking field defenses. Sometimes, even when a commander forms his unit (or units) in echelons to the right or left, he in effect attempts to use the units moving in the rear as the second echelon. Such units are moved into the battle following the echelons advancing ahead of them, and receive typical second-echelon missions.

It should also be noted that the underestimation of the linear formations is associated with a primitive conception of the tactics of maneuvering. The commanders who always try to have multi-echeloned battle formations in divisions and regiments usually limit themselves to the maneuver directed only at the forcing of the enemy from his positions. One can stretch a division like a long hose, form several echelons, and achieve nothing. This ram-like formation is especially characteristic of linear tactics. All the echelons peck at one and the same point with a diminishing, not a growing, strength. The deep arrangement of battle formations in divisions and regiments, which, in the interpretation of some commanders, amounts to the concentration of all forces

in one fist, so to speak, and is a prerequisite of a successful maneuver, actually often leads to the linear tactics. At the beginning of the last year, the battle formation of the N-th Division was a column of battalions. This was, one might say, the height of echeloning in depth. But all this division achieved was to force out the enemy from a battalion defense sector. The losses did not justify the result.

Second echelons have not yet outlived their usefulness. As it was mentioned above, they may be necessary for battle formations of divisions in attacking fortified areas. But second echelons in large units (corps, army) serve as reserves for feeding the battle with manpower and equipment. They are intended, not for successive blows at one and the same spot of a strong defense, but for maneuvering from within the depth, for the development of a tactical success into an operational one. Such echeloning is an indispensable condition of the success of broad offensive operations.

What is the interrelationship between the tactics of maneuvering and the linear infantry battle formations? What is really the advantage of modern battle formations over the multi-echeloned ones? Before taking up these questions, let's briefly define linear tactics and tactics of maneuver.

Linear tactics are, first of all, a uniform distribution of forces without any consideration for the weak spots in the defense. Each division or regiment may be echeloned in depth. This does not change anything as long as manpower and matériel are distributed evenly along the front. A tendency to be uniformly strong everywhere is the distinguishing characteristic of linear tactics. Typical also are frontal thrusts, which come from fear of maneuvering and a tendency to avoid a zigzagging front line in the offensive and breaks in the front line. In these tactics, the reserves are usually pulled apart into smaller parts, for one is afraid to weaken even one sector of the front. The result is the forcing out of the enemy from his positions and excessive losses for the attackers. Linear tactics in defense have the same characteristics: the tendency to be strong everywhere, without creating any concentrations of manpower or matériel and without reserves for a maneuver from within the depth in threatened directions.

The tactics of maneuvering amount, primarily, to blows at the weak spots with considerable force, and in the direction where the enemy least expects it. A

bold maneuver is the soul of such tactics. One tries to maneuver on flanks and in the rear and to come out on enemy lines of communication, without fearing to expose his own flanks. By passing, enveloping, and blockading defensive areas of the enemy, directed at the dismembering of his battle formations and the disorganization of their control—these are the typical indications of the tactics of maneuvering. It is intended, not for “forcing out” the enemy from his positions, but for his complete defeat.

Maneuvering in offensive operations is an action in which the troops engaged in the offensive try to occupy the most advantageous position, which allows them to use their fires against the enemy or to combine fire attack with a blow of the manpower. But to attack under the present conditions, i.e., to deliver a truly crushing and irresistible blow, is possible only through the use of the main mass of manpower and weapons, and this is greatly facilitated by the battle formations arranged in strict conformity with regulations.

It is known that battle formations express tactical methods used by troops. Battle formations are not constant. They change, depending upon a number of conditions. For example, battle formations in attack always depend on the battle formations existing in the defense. Their changes, of course, are also effected by the general development of matériel, the organizational structure of troops, etc.

During the first stage of the war of 1914-1918, the infantry defense in all armies was based on a system of points of resistance with coordinated fires, and occupied an insignificant depth. Later, it changed to solid lines, and the infantry was always formed in shoulder-to-shoulder contact in their positions. During the next period of the war, defense began to develop into depth and assume a multiple-belt form. The French, for instance, built three lines from four to five kilometers apart. Strongpoints with mutually supporting fires and obstacles before and between them were widely used. The Russian army built its defensive battle formations in depth. *Instructions for the Fortification of Positions on the Western Front* [Russo-German front in World War I] contained this: “A position should be, not a thin line which can be easily destroyed by enemy artillery or broken through by attacking troops, but a fortified area sufficiently deep to require a complete exhaustion of the material and moral strength of the enemy for its destruction and breaching.”

It was characteristic of that war to use dense infantry battle formations when on the defensive. Suffice it to say that Germans, in the western theater of operations, assigned a division in defense a zone only from two and a half to three kilometers wide. A considerable depth and a high tactical density were thus attained.

Let us now review the evolution of battle formations in attack. At first there were long, almost un-

interrupted infantry chains [Russians always distinguished between “chains” and “waves”] behind which moved reinforcements and reserves in compact formations. In 1915, waves of infantry began to be used. For attacks, the French formed their divisions in three echelons. The regiments moved in line (abreast); the battalions, one after another at a distance of 500 meters from each other. This echelon consisted of two lines (echelons): two companies in the first line and the third company in the second. Reserves formed the third echelon.

It is not difficult to notice that deep formations during attacks were the result, in the first place, of deep defense belts. It was believed that the number of waves in an attack was to correspond to the number of defense lines which had to be breached. It was this belief that determined the echeloning in offensive operations. And of course, the importance of firepower was constantly increasing, especially on the western front, where divisions in defense had, at times, more than forty guns per kilometer of the front, and 100 on the offensive. It was not firepower alone, however, that caused the echeloning of battle formations in offensive operations.

Certain changes had taken place by the end of the war. Defense was built on the principle of points of resistance, which were adapted for circular defense and spread over a considerable depth. The power of artillery and machine guns was constantly growing. Under the influence of these factors, advancing chains began to disintegrate and break down into separate groups.

On the whole, deep battle formations of troops in offensive operations during the first World War were, for the most part, the result of the following factors. Defense zones at that time were characterized by a great density and depth. Inasmuch as tanks and aviation were not widely used, the infantry was the only shock force. If one takes into account that its armament was only slightly inferior to its present weapons, it will be clear why, in the end, the main blow was dealt by the manpower. Hence the echeloned formation, intended to breach multi-belt defenses. Massed artillery was used on a great scale, but it could not suppress the deeply branched system of the defense. Germans tried many a time to destroy Russians by hurricane artillery preparations, but always encountered bayonets in the attack. Artillery alone, in its forms of employment at that time, did not create the same fire superiority which can now be achieved through the use of artillery, tanks, aviation, and heavy infantry weapons.

One should also consider the fact that artillery (artillery and machine guns were the basic means for repelling attacks at that time) fired primarily upon the forward echelons of the attackers. Consequently, it was possible for second echelons to reach the area of the attack only slightly disorganized.

Modern defense has been strengthened by the new

matériel of tremendous firepower. Thanks to its mobility, this matériel allows great freedom of maneuver. At the present time, masses of planes are used in defense. Tanks are also used, although ordinarily they are employed for offensive operations. The planes chop off the second echelons of the attackers and inflict losses on them, and weaken them even before they attack. Modern defense also possesses a system of artillery and mortar fires that covers the whole depth of the advancing battle formations of a division, no matter how it may be echeloned.

The offensive possibilities of infantry have also completely changed. Aside from the support it receives from artillery, tanks, and aviation, it possesses an enormous firepower in its heavy and automatic weapons. The percentage of infantry proper (i.e., the live shock force) has become extremely low in infantry divisions. An important part in infantry is now played by the men handling heavy and automatic weapons, regimental infantry guns, mortars of all calibers, antitank rifles, and heavy and light machine guns. There are many automatic weapons in the battle formations of squads and platoons, in addition to those in the special automatic-weapon units.

Consequently, firepower has now become tremendously important. This means that the outcome of the battle is now decided by fire superiority. Therefore, the battle formations of infantry engaged in offensive operations should be formed so that maximum use of their fire arsenal may be secured, which is facilitated by the new order of battle formations. It is now possible to move an overpowering amount of fire means into action and in the direction of main effort. The modern battle formations help utilize the bulk of infantry means and of reinforcing units in the struggle for fire superiority during the first stage of the advance; in the moments preceding the attack, and during the attack. When the artillery has transferred its fire into the depth and the infantry is about to attack—this is the most critical moment. To make the attack successful, the fire of heavy and light infantry weapons should be coordinated and all their power directed at the forward edge. When the infantry is echeloned, the greater part of the fire means of the advancing infantry will not participate in the preparation for the attack. And it is the absence of fire succession that results in the infantry being pinned down right in front of the trenches of the enemy.

The battle formation of our units and subunits has, of course, a certain depth—it is ridiculous to think that infantry chains are strung like a thread—not mentioning the depth which is created by reserves, tanks, accompanying guns, and all means of reinforcement, all of which move together with the infantry.

At the present time, tanks are a powerful shock force supporting infantry. The fact that infantry

has ceased to be the only storming force allows us to get away from echeloned formations. They are not profitable for two reasons: the echeloning interferes with the simultaneous use of the main mass of infantry and of fire means; second echelons in modern battles suffer losses even before attacks are launched.

One should also consider the fact that the flanks of deep formations are especially vulnerable. It is different with modern battle formations. Experience shows that the wide front of attacking infantry chains obstructs and, at times, entirely excludes the possibility of their envelopment and encirclement. Finally, arranging battle formations in echelons to the right or left, in "V" or inverted "V" formations [literally: offset to the left or right, or with the point to the front or rear], fully insures the success of any form of maneuver: encirclement, envelopment of one or both flanks of the attacked objective, breakthrough, etc. The characteristic peculiarity of such formations is their flexibility. They fully correspond to the high tempo of the modern mobile battle. But they should be well worked out and skilfully controlled.

Regrouping within the battle formation, i.e., the concentration of efforts on one or another sector of the front, is effected through the use of reserves and means of reinforcement. As far as the narrowing of the zones for the advance of divisions, regiments, and subunits is concerned, this, of course, is also done for purposes of regrouping. The extreme condensation of infantry battle formations, however, should not be undertaken, especially in battalions and companies. Experience shows that this not only complicates the control, but results in considerable losses. As a general rule, superiority in the direction marked for the main effort is difficult to attain by condensing infantry chains. But this does not create the superiority in strength; it is, primarily, the concentration of a mass of fire means and skilful maneuvering. It is possible to cite numerous examples proving that it is not the density of the attacking chains that determines the success of the attack, but the fire saturation of the battle formations in the sectors of main effort, and, of course, the skilful utilization of the means of infantry and of its reinforcing subdivisions.

Let us sum it all up. Attacking in chain formations lends infantry a great breaching strength; it facilitates a quick wedging into the disposition of the enemy, and hits, with the power of its fires, the depth of his defense from the first moments of the battle. By the skilful use of the modern battle formations, one can quickly break down the solidity of the defense. Then the attack breaks down into separate battles along the front and in its depth, i.e., conditions are created in which tactical maneuvering produces excellent results.

We emphasize the fact that modern battle formations facilitate successful breakthrough operations

from the first moment of the battle to a greater extent than the echeloned ones. Nowadays, the strength of the initial blow is extremely important. The success of our offensive operations near Stalin-grad, at the middle Don, at Kastornaya and other fronts was determined to a great extent by the fact that the enemy defense had been breached during the first few hours. Immediately, the units assigned to the development of the breakthrough were moved in. The echeloned order of the battle formation in divisions and regiments led, not infrequently, to a considerable delay in the initial blow. As a result, the attacking units only "bit into" the defense. Nat-

urally, this excluded a rapid development of the battle. The high tempo of action, however, is one of the main prerequisites of success in the battle of encirclement and in the full defeat of the enemy. But the tactics of maneuvering, in their spirit, are the tactics of the battle of encirclement and complete destruction of the manpower and technical equipment of the enemy.

That's why the contradiction between the tactics of maneuvering and the linear order of battle formations is only seeming. On the contrary, the two ideas are inseparable, and this has been proved by the whole course of the War for the Fatherland.

A German Commentary on the Russian Offensive

[Translated at the Command and General Staff School, Fort Leavenworth, Kansas, from a German article in *Kölnische Zeitung* 28 September 1943.]

DURING the fighting of recent weeks in the central sector, the Russians frequently changed their points of main effort as soon as they ran into especially strong resistance. They would then feel out the front in an effort to find a soft spot somewhere else. As a result of their underestimation of German resistance, they frequently believed they could continue their attacks while on the move (i.e., without stopping to reorganize), which cost them very heavy casualties. It was only after they had suffered serious losses that they decided on longer and more systematic preparations for their heavy attacks. They constantly received great quantities of replacements both of matériel and of personnel, by means of which they were able rapidly to make good their losses. It was often observed that they were able to replace casualties in a particular division two or three times in rapid succession and recommit the division again after each replacement. New formations, also, were continually arriving. The destruction of their personnel and matériel was, of course, very heavy as a result of reckless employment, and this must have its effect on the further prosecution of the war.

In order to compensate for shortages that may exist in spite of rapid delivery of supplies, and in order to intensify action, the Russians engage *en masse* their heavy and automatic weapons (artillery, "salvo-guns," mortars, tanks, mechanized forces, and air forces), and in consequence of this they have further developed the system of major concentration [literally, "strongpoint-like concentration"]. They have likewise become more flexible in the

tactical employment of their weapons. When the advance units of their tank formations were frequently attacked by German combat planes and anti-tank cannon, they immediately equipped them with increased anti-aircraft defense. They have also considerably increased their defense against pursuit aircraft. They make effective use of their numerous armored and mechanized formations as well as of cavalry units, especially for the purpose of widening and deepening points where penetrations are effected. It has been observed that their concern for their flanks has been somewhat lax in many cases, and this has frequently cost them dearly. Characteristic of the enemy's conduct of operations is the increased activity displayed, at the command of Moscow, by partisan [guerrilla] bands in areas to our rear, and in some places direct cooperation has been observed between these partisan bands in the vicinity of the front and the Soviet front itself.

In the severe fighting of the last few months in the central sector, the Russians have been unable to effect a breakthrough in spite of their reckless employment of men and matériel. To be sure, they have won back large areas of their not-very-valuable terrain, but at the cost of great sacrifices of men and matériel. Those broad areas which once we took by storm are being used by us as a weapon; by means of a war of movement and withdrawals to new lines, as the result of which reserves can be freed, we are successfully attempting to save German forces and to weaken the enemy to the greatest possible degree.

“For Conspicuous Gallantry - -”

LIEUTENANT COLONEL JACK W. RUDOLPH, *Infantry*
Instructor, Command and General Staff School

NAPOLÉON is reputed to have said that given enough ribbon he could conquer the world. The little emperor may well have uttered the cynical phrase, for he undoubtedly introduced into general military procedure the practice of rewarding battlefield gallantry by decorations, regardless of rank. Prior to his day only the nobility and high commanders—who usually were noblemen—were rewarded by their governments. Today all armies recognize bravery and meritorious service, irrespective of position.

Early policy of the American government followed the pre-Napoleonic vogue. While gold medals and swords were occasionally voted by the Congress to successful commanders, the only reward for lesser individuals was brevet, or honorary, promotion. A decoration appears to have been considered akin to a patent of nobility and therefore not in keeping with democratic simplicity.

An exception to American practice was the Order of Military Merit, instituted by Washington in 1782 to recognize “not only instances of unusual gallantry, but also of extraordinary fidelity and essential service in any way.” This appears to have been one of the earliest efforts to extend recognition to enlisted men, but it was not an official government action; consequently, it fell into disuse after the Revolution. Never formally abandoned, it had been forgotten by 1812. It remained a half-buried footnote of history until its resurrection in 1932 as the Order of the Purple Heart during the bicentennial celebration of George Washington’s birth.

In 1861 the United States departed from what had become almost a settled policy against decorations when the Congress authorized President Lincoln to award in its name a “medal of honor” to members of the Army for deeds of gallantry during the Civil War. Thus was born the *Congressional Medal of Honor*. Today this medal is our oldest and highest decoration, rivaled in prestige only by the Victoria Cross. Only the VC and the French Legion of Honor are older. To date, slightly more than 2000 have been awarded, most of them before 1900 when it was our only military decoration and had not attained the standing it now enjoys.

Present policy governing the Medal of Honor, first expressed in 1897 and tightened slightly in 1917, is as follows:

“In order to justify an award . . . an officer or enlisted man must perform in action a deed of personal bravery or self sacrifice above and beyond the call of duty, so conspicuous as clearly to distinguish him for gallantry and intrepidity above his comrades,

involving risk of life, or the performance of more than ordinarily hazardous service, *the omission of which would not justly subject him to censure as for shortcoming or failure in the performance of his duty.*” In other words, its winning involves an act so dangerous that if a man refuses to attempt it, or if he tries and fails, no question of his courage can be raised.

Under the pressure of the above jawbreaker only ninety-five Medals of Honor came out of the last war, over 25% of them posthumous awards. In the present conflict, twenty-three had been awarded to the middle of November 1943.

In January 1918 President Wilson created the *Distinguished Service Cross* for heroism in action not justifying the Medal of Honor. Today the D.S.C. is our second ranking battle decoration. It may be awarded by the commander of a field force which is the appropriate command of a lieutenant general or higher, and by a major general upon delegation of the authority to him. Thus, a division commander, when so authorized, may award the D.S.C. within his division for extraordinary heroism in action.

At the same time (1918) the *Distinguished Service Medal* was established to recognize especially meritorious service in a position of great responsibility, not involving actual combat. This medal can only be awarded by the War Department. Its purpose is to provide a reward for higher commanders and staff officers whose duties prevent them from winning decorations on the battlefield.

Also in 1918 the *Silver Star Citation* was authorized by Congress for anyone cited in General Orders. Originally, this device was worn on the appropriate campaign ribbon, but in 1932 the *Silver Star* attained the status of an independent decoration. It is given for battle heroism not warranting either the Congressional Medal or the Distinguished Service Cross.

In 1932 the *Order of the Purple Heart* was revived in its present form, so named because the original badge of Washington’s Order of Military Merit consisted of a heart-shaped piece of purple silk or satin sewed on the breast of the uniform coat. It is given for a wound received in action which requires hospitalization. The Purple Heart is also awarded posthumously to all who are killed in action or die from wounds on and after 7 December 1941.

The medals so far discussed are awarded only in time of war—an exception being a rare peace-time presentation of the Distinguished Service Medal. For meritorious conduct in peace or war the Army

has six other decorations, four of which are only a year old.

First is the *Soldier's Medal*, established in 1926, which may be presented to any member of the Army for "heroism not involving actual conflict with an enemy." Most of its recipients to date have been honored for life saving.

The *Distinguished Flying Cross*, also inaugurated in 1926, may be awarded to a member of the armed services serving in any capacity with the Air Force for "heroism or extraordinary achievement while participating in aerial flight." By virtue of its requirements it is, of course, awarded mostly to members of the Air Force, as is the *Air Medal*, created in 1942. The conditions for the latter are much the same as for the D.F.C., except that it is awarded for achievement not warranting the Flying Cross.

Another new decoration is the *Legion of Merit*, which constitutes recognition of service in a position of responsibility, well and honorably performed. It is, in effect, a "junior" Distinguished Service Medal. In appearance the Legion of Merit is one of the most striking of all American decorations.

A recently authorized medal is the *Soldier's Good Conduct Medal*, presented to every enlisted man who since 27 August 1940 receives an honorable discharge after three years of service. For the war period the three year restriction has been amended to authorize presentation for one year of honorable service. At present no medal is issued, but the ribbon is presented. Receipt of the actual medal must await the end of the war.

Two similar medals are no longer awarded to the same man. For subsequent acts of gallantry warranting the repetition of a previous decoration, he receives an *Oak Leaf Cluster* in lieu of a second medal, this device to be worn on the ribbon. During the last war, one man received five oak leaf clusters to add to his D.S.C.—equivalent to six Distinguished Service Crosses. General MacArthur wears six clusters on his Silver Star.

An interesting novelty, introduced into our system since Pearl Harbor, is the *Distinguished Unit Badge*, which may be worn by all members of a unit cited in War Department orders. This device consists of a dark blue ribbon, approximately the size of a campaign ribbon, surrounded by a gold frame. It is worn on the right breast.

In addition to personal decorations, the Army awards campaign medals and ribbons to all who serve in a particular campaign. These date back to the Civil War and include every military operation of the United States since that time. The most widely known are the *Allied Victory Medal* of World War I and the *American Defense Service Medal*.

Recently authorized campaign medals are the *Occupation of Germany Medal* and three created for

the present war honoring service in the *European—African—Middle East Theater*, the *Asiatic Theater*, and the *American Theater*. The War Department has also authorized a ribbon for members of the Women's Army Corps who served in the old WAAC and are now in the WAC. Actual medals for these services will not be struck until after the war, but ribbons are being worn.

These ribbons, incidentally, are designed to mark service while it is being rendered rather than in commemoration of it. As soon as a man arrives for duty in a theater of war he is issued the specific ribbon for that theater and puts it on at once.

The formulation of policies governing decorations within a unit is the duty of G-1. This staff officer also supervises the execution of these policies once they have been approved and published. Since decorations have a powerful effect upon the morale and fighting spirit of an organization, it is an extremely important responsibility.

G-1's primary concern is the establishment and supervision of policies which, in conformity with existing higher policies, should be liberal without, however, detracting from the value of decorations. An important phase of this duty is to see that subordinate commanders understand the spirit as well as the meaning of division policies.

Uniformity in executing the policy is a governing consideration and one which is sometimes difficult of accomplishment. Since recommendations for decorations originate in lower units, the policy is susceptible of many interpretations. G-1 must see that each lower commander knows exactly what the divisional policy means and that all apply it in the same manner.

Long before combat, interest in decorations and appreciation of their significance can be fostered among the men by dissemination of information concerning the awards, their history, and value. Methods may be lectures by unit officers, pictures, and models, or posters illustrating American medals and ribbons.

In drawing up policies, two may well be established; one to cover awards not connected with combat, the other governing battle awards. The former should be promptly published and an active interest in its application fostered. Every opportunity should be seized to afford official recognition for outstanding service. This will foster high morale and inspire men to greater effort.

A policy governing combat awards should be prepared but not issued until needed. Too early publication will clutter the files of lower units and may cause lack of interest. When needed it will have been forgotten. This policy file must be checked regularly and kept up to date as higher policies and regulations change.

To keep his decoration policy abreast of the times, G-1 must maintain a complete file on the subject and know it thoroughly. It may be worth while to distribute pertinent extracts of regulations and policies to lower units from time to time for their information.

G-1 is also charged with arranging and supervising presentation ceremonies. Presentation should be made as promptly after the act as circumstances permit, they should be made publicly, and close to the site of the deed for which the award is made. The recipient's own unit should be present. The ceremony should be simple but impressive—a milestone in the lives of both the hero being decorated and the spectators. Personal bestowal by a higher commander is especially effective.

To insure quick bestowal of decorations, a supply of those which can be awarded directly in the field (Purple Heart, Silver Star, and when authorized, the Distinguished Service Cross) should be readily available. If the decorations are not immediately at hand, the order for the award should be quickly drawn and published as soon as the award is approved. The actual presentation can then be made at the earliest opportunity.

In supervising the execution of decoration policies, the G-1 should consider the following questions:

1. Do subordinate commanders know exactly what is meant by the wording of the division policy?
2. Is prompt recognition the rule rather than the exception? Check any unit having discrepancies. Corrective action by the division commander will pay dividends in increased morale.
3. Is there a reasonable balance between the number and types of citations received from units having

similar combat experience? If not, investigate. One commander may be too liberal, thus cheapening the decoration; another may be too stingy, thus hurting morale. All should realize that there is a definite relationship between a unit's battle record and casualties and the number of heroes in its ranks.

4. Is a higher percentage of decorations being awarded to officers and men around any headquarters than to those in combat units?

5. Are officers taking credit for exploits of their men and being decorated for deeds that are *not* "above the call of duty"?

6. Do officers who impetuously take command of a subordinate unit do so through lack of responsibility toward their own job or because their presence is needed at that point at that time? In other words, are they brave or just foolhardy? Should they be censured for foolishly risking their lives, interfering with a subordinate, and jeopardizing the functioning of their own command, or should they be decorated for furnishing an outstanding example of courage and leadership to turn the tide of battle?

7. Are men in service echelons who perform outstanding feats of ingenuity and endurance in order to keep supplies and vehicles moving during combat also given recognition for their services?

At no time in history have American soldiers been so be-ribboned and be-medalled. With the variety of awards available, extreme care must be exercised to insure that our system of decorations does not collapse from improper handling. The responsibility for its functioning rests with G-1 in all echelons. So important is the problem of decorations in the maintenance of high morale and fighting efficiency that it deserves closest attention from all commanders and G-1's alike.

The Other Fellow's Weapons

IN THE early hours of the action at El Guettar, a German half-track towing a short-barreled 75-mm infantry howitzer was seen moving rapidly toward our lines. Before observers could recover from their surprise the vehicle was halted and the crew prepared for action. The gun was then within 500 yards of our OP's, and was under our minimum elevation. One of the observers of my battalion reacted first to the situation by taking charge of a section of infantry mortars fifty yards behind his OP. By shouting a range and pointing out a direction with his arm he

got out the first salvo. The rest was easy. Sensing in yards he obtained a bracket, and his fire for effect obtained a direct hit on the vehicle, exploding its ammunition, blowing the howitzer off the road, and killing most of its crew.

Lesson learned: As infantry can use our weapons and adjust artillery fire, so can we profitably use theirs.

(From "Snapshots" by Lieutenant Colonel Joseph R. Couch, F.A., in *The Field Artillery Journal* December 1943.)

SOP for Burial and Graves Registration

Many SOP's have been written on a basis of theory during training and maneuvers. The following SOP on Burial and Graves Registration, however, is a product of actual experience on the battlefield. It was prepared by one of our infantry divisions in Italy, and its soundness and practicability have been proven in combat.—THE EDITOR.

HEADQUARTERS — INFANTRY DIVISION
APO —

15 September 1943

STANDING OPERATING PROCEDURE FOR BURIAL AND GRAVES REGISTRATION

I. RESPONSIBILITY:

1. Responsibility for evacuation, preparation for burial, and when necessary, burial of American, Allied, and enemy dead is that of regiments and separate battalions, exercised through Burial and Graves Registration Sections working under unit Burial and Graves Registration Officers. These officers, in addition to having direct charge of their unit's Burial and Graves Registration Section, will supervise, direct, and coordinate for their commander the work of subordinate Burial and Graves Registration Sections in his command.

2. Regiments, separate battalions, and battalions organic within regiments will organize their own Burial and Graves Registration Sections to perform required duties or to assist their parent unit in such duties when called upon to do so.

3. Burial and Graves Registration Officers of companies, batteries, and troops, separate and otherwise, will not be required to do more than report location of friendly or enemy dead to their next higher headquarters or to the nearest Burial and Graves Registration Section operating in their vicinity. Burial and Graves Registration Sections will not be organized by units smaller than battalions.

II. COMPOSITION AND EQUIPMENT OF A BURIAL AND GRAVES REGISTRATION SECTION:

1. *Personnel.*—Unit Burial and Graves Registration Officer, in charge. One Medical Noncommissioned Officer, Section Chief, Three Privates.

2. *Equipment.*

Mattress covers
One shovel and one pick
One pair of scissors
One finger-printing set
Two litters
Personal effects bags
Large-scale grid map of area in which working
Notebook and lead pencils

EMT (Emergency Medical Tag) Form No. 52B
Report of Burial, GRS Form No. 1

Transportation to be furnished by units, pref
3/4-ton w/carrier.

III. DUTIES OF A BURIAL AND GRAVES REGISTRATION SECTION ORGANIZED BY REGIMENTS AND BATTALIONS:

Preliminary Action—American Dead—Prior to Evacuation to Cemetery or to Burial Plot.

1. A Medical Officer preferably or a Medical non-commissioned officer will accomplish and attach to the body in a conspicuous place an EMT (Emergency Medical Tag) Form No. 52B. If such tag is found attached to the body but incompletely accomplished, it will be completed immediately.

2. Identify the body from identification tags, individual pay record, letters, or other means, such as questioning members of units operating through the area.

3. Deliver body and personal effects together to the division cemetery.

IV. BURIAL AND REGISTRATION:

1. *Hasty Burial.*

a. When not possible to deliver bodies to the division cemetery, or when sanitary requirements indicate immediate burial to be desirable, bodies will be evacuated to the nearest roadside and there buried.

b. In all cases of hasty interments the following actions will be taken:

(1) Search the body for and remove therefrom all personal effects including such items as money, rings, wallet, letters, etc. Perishable articles that have no keepsake value such as cigarettes, candy, and chewing gum should be given to other men. Care should be taken to discard articles that may cause embarrassment to relatives at home. Tie all articles in a handkerchief, personal effects bag, or paper sack and include in the bag one copy of completed GRS Form No. 1.

(2) One copy of GRS Form No. 1 will be completed to show all information called for thereon.

(3) One identification tag will be removed; the other will be buried with the body. If only one tag is present it will be left on and buried with the body.

(4) Emergency medical tag will be removed.

(5) Body will be wrapped in a shelter-half, blanket, or mattress cover, when available.

(6) Religious services will be held and body buried with all the reverence that circumstances will allow.

(7) Temporary marker will be placed at head

of grave and to this marker will be attached the identification tag removed from the body.

(8) On GRS Form No. 1 will be accurately recorded the map coordinates of the burial plot and other easily identified terrain features that may assist others to locate the grave.

(9) Graves for hasty burials will be dug to the same depth as those at division cemeteries—namely, five feet.

(10) Deliver as soon as possible one completed GRS Form No. 1, Personal Effects and EMT Form No. 52B, to Burial and Graves Registration Officer, — Infantry Division.

2. *Burial at Division Cemetery.*—Graves will be dug to a depth of five feet and be spaced four feet apart from center to center. One platoon of the QM GR Company will be stationed at the division cemetery there to receive, bury, and register bodies.

3. *Registration at the Cemetery.*

a. GRS Form No. 1 will be typewritten in eight copies and all copies signed by the officer reporting burial.

b. Form mentioned in a above, accomplished EMT Form No. 52B, and personal effects will be delivered to Burial and Graves Registration Officer, — Infantry Division. One copy of completed GRS Form No. 1 will be included in the personal effects bag.

V. WHEN IDENTITY IS UNKNOWN:

1. Fingerprints of all ten fingers will be taken. In such cases sixteen copies of GRS Form No. 1 will be made, eight showing fingerprints of the right hand and eight showing fingerprints of the left hand.

2. When identification tag is missing—whether body is identified or not—two additional copies, exact duplicates, of GRS Form No. 1 will be made, one to be sealed in a bottle or cartridge case and placed with the body; the other to be fastened to the grave marker. This requirement means ten copies of GRS Form No. 1 in the case of identified dead with missing identification tags and ten copies of GRS Form No. 1 in the case of unidentified dead with missing identification tags.

3. Notation as to type of container, and that duplicate of GRS Form No. 1 is buried with remains, will be made on GRS Form No. 1.

4. Laundry marks will be shown on GRS Form No. 1.

5. Teeth impressions will be made by unit dentist upon request of unit Burial and Graves Registration Officer.

VI. MARKING OF GRAVES IN CEMETERIES:

Graves are numbered from left to right of a person standing at foot and facing the grave. Rows

are numbered from rear to front for purpose of determining right or left of a given grave; the registering officer will stand at the foot of and face the grave and be governed by his own right and left—not right and left of the deceased.

VII. ALLIED AND ENEMY DEAD:

1. In the case of Allied and enemy dead, procedure is exactly the same as for American dead except that one extra copy will be made of *all* forms required except the Emergency Medical Tag.

2. Nationality of Allied or enemy dead will be indicated on GRS Form No. 1 in upper right hand corner.

3. In the case of Allied or enemy dead, one of the nine copies of GRS Form No. 1 will be included with personal effects bag.

4. Data from Allied or enemy identification tags will be copied on temporary grave marker using heavy lead pencil.

5. Allied and enemy dead will be buried in separate parts of any designated cemetery.

6. In the case of enemy dead, one-half of the identification tag and any insignia which may assist in identifying units will be removed and placed in personal effects bag. The other half of the identification tag will be buried with the body.

By Command of Major General _____:

Certified a true copy: _____ /sg/ _____
/tp/ _____

Lt. Col, GSC
A C of S, G-4

Lt. Col, AGD
Adjutant General

* * * *

HEADQUARTERS — INFANTRY DIVISION
OFFICE OF THE DIVISION GRAVES REGISTRATION
OFFICER, APO —

19 August 1943

MEMORANDUM To: G-1, — Infantry Division Reinforced, APO—.

Burial Report, American — Infantry Division Cemetery (US Military Cemetery No. —), one mile east of Coronis, Sicily—coordinates 42.5-37.3 S. Fratello Sheet, Map of Italy, 1/50,000, from hour of our relief of —th Infantry Division through 1800, 19 August 1943.

SOP FOR BURIAL AND GRAVES REGISTRATION

A. AMERICAN

	Identi- fied	Unidenti- fied	Totals	
1. Army:				
a. Officers -----	23	0	23	
b. Enlisted Men ---	364	2	366	389
2. Navy:				
a. Officers -----	0	0	0	
b. Enlisted Men ---	4	0	4	4

B. ITALIAN

1. Army:				
a. Officers -----	2	0	2	
b. Enlisted Men ---	13	14	27	29

C. GERMAN

1. Army:				
a. Officers -----	3	0	3	
b. Enlisted Men ---	76	16	92	95

D. TOTAL BURIED: 485 32 517

REMARKS:

1. Causes of death:

Mines -----	44
Shell fragment -----	301
Gun-shot wound -----	39
Booby traps -----	2
Hand grenade -----	1
Rocket launcher (backfired) -----	1
Accident (broken neck) -----	1
Air raid -----	3
Plane crash -----	1

(American) 393

2. Known enemy dead buried by enemy in addition to those shown above:

German -----	84
Italian -----	2
Total -----	86

Capt. — Inf Div
GRO

Airborne Two-and-a-half Ton Trucks

(Extract from a communication from the Southwest Pacific Theater.)

TRANSPORTING two-and-a-half ton trucks by air in Douglas C-47's became an accomplished fact when an airborne engineer aviation battalion in the Southwest Pacific Theater found that the terrain in which they were operating precluded moving the rear echelon trucks overland to follow the unit. Two planes are necessary to transport the truck; however, in



order that unloading may be accomplished at destination, a third plane is necessary to carry the truck ramp.

The technique developed to move these six-by-six, long wheel-base cargo trucks includes some modifications of the body and chassis of the vehicle and the fabrication of a single-wheel dolly. The modification of chassis and body permits dividing the truck in two just behind the cab, the front part being kept from dropping to the ground by virtue of the dolly which is bolted to the rear of the front half of the truck.

In loading the vehicle into the C-47's, the first procedure is to remove the front bumper, the front left fender, the windshield, and all outside dual tires in rear. Next the chassis and body are unbolted and the dolly fixed in place. Then the front half of the truck is driven, with forward drive, up a ramp and into the first plane, the front axle of the vehicle being placed at station 90 in the plane. The body having been removed, the rear half of the truck is backed up the ramp and into the second plane where it is bounced around to push it up into the plane within two inches of the bulkhead.

In the second C-47 along with the rear end go the front bumper, the wheels, and other equipment which was removed, all being placed in the plane as far forward as possible; the front half of the body, taken in sideways and placed on the floor eight inches under the chassis; and the rear half, placed on the floor behind and up against the front half.

The third plane carries the complete truck-ramp.

According to a report from the unit which has been moving its cargo trucks in this manner, these airborne vehicles have been extremely valuable in forward areas which were inaccessible by road, water, or rail.

NOTE: Plans for modification of the two-and-a-half ton, six-by-six cargo truck and for fabrication of the single-wheel dolly are available, along with the originators' instructions for procedure, on request to the Library of the Command and General Staff School.

Air - Ground Cooperation on the Battlefield

LIEUTENANT COLONEL BENJAMIN M. TARVER, JR., *Air Corps*
Instructor, Command and General Staff School

A description of Air Force organization for support of ground forces is given in an article by Lieutenant Colonel L. E. Johnson entitled "Tactical Air Division" in this issue.—THE EDITOR.

THE OPENING paragraph in FM 100-20 states: "Land power and air power are co-equal and interdependent forces; neither is an auxiliary of the other." This one statement has caused many public and private discussions. One man has said that it is the declaration of independence of the air arm—ground forces must fight on the battlefield alone. Another has stated that ground forces now exist merely as an auxiliary of the Air Force. However, neither speaker has been in battle, where the doctrine stated in FM 100-20 was born. So let's go to the battlefield and examine the doctrine in action.

Let's study air operations in the Mediterranean area. And for simplicity, let's examine the phases of the air mission in order of the priority set up in FM 100-20:

1. First Priority.—To gain the necessary degree of air superiority.
2. Second Priority.—To prevent the movement of hostile troops and supplies into the theater of operations or within the theater.
3. Third Priority.—To participate in a combined effort of air and ground forces, in the battle area, to gain objectives on the immediate front of the ground forces.

I. AIR SUPERIORITY

At the time of our landings on the Atlantic side of North Africa we had sufficient air power in the landing area to cut the air opposition to negligible proportions. When our ground forces raced eastward toward Tunisia they outran our ability to build up air bases needed by air forces to gain air supremacy in the forward area. Throughout the winter the ground forces were unable to advance, but they did defend the areas which were needed for air bases. During the winter the enemy was able to gain local air superiority because he could concentrate his airplanes faster than we could assemble ours from few and scattered airfields. This hampered both ground and air operations. Later, with the build-up of Allied air power in the forward area, the Axis air force was driven from the skies. This was accomplished by the Allied air forces concentrating available air power against enemy aircraft in the air and against the enemy air installations—airdromes, supplies, maintenance facilities, and aircraft on the ground.

The next major operation, the assault and seizure of Sicily, was preceded by concentrated air attacks

on the enemy air forces to secure that degree of air superiority necessary for the safe conduct of the amphibious operation and the subsequent ground advance. It is important to note that these operations against the enemy air in Sicily were made possible by the seizure by ground forces of suitable airdromes in the Tunisian area.

The next combined operation was the assault of Italy. Again prior to the ground assault the air force concentrated its attacks against the enemy air in the Foggia and Naples area. At present the ground and air forces are enjoying almost complete freedom from enemy air interference.

Before leaving the air superiority phase of air operations, it is necessary to point out that air superiority is a temporary condition. It is not a protective umbrella through which no bombs may fall. The enemy attacked ships unloading on the beaches of Sicily and those in the waters off Salerno. More recent is the sinking of ships in the harbor at Bari. Our troops have been bombed and strafed by the enemy in Tunisia, in Sicily, and in Italy. Then what is this air superiority we claim? It is that condition in air warfare where the enemy's air attacks are not of such consequence that our air, ground, and naval forces are forced to discontinue their respective missions. In air operations air superiority means that our air forces can continue their attacks without losses disproportionate to the result of the attack. To ground forces air superiority may be stated to mean that ground casualties and restrictions of ground movement and supply imposed by enemy air is less than that imposed on the enemy ground forces by friendly air forces. In other words, the ground forces fight their battles with an advantage over the enemy ground forces. To naval forces it means that the damage by enemy air is not prohibitive in amount. Necessarily, the maintenance of air superiority is a continuing operation, although it may be performed concurrently with other phases of the air mission. Of course, when the enemy no longer has any air power, we have air mastery and the maintenance of air superiority requires little or none of our air effort.

II. ISOLATION OF THE BATTLEFIELD

The prevention of movement of hostile troops and supplies into the theater of operations or within the theater constitutes the second priority phase of the air force mission. Again let's examine the Mediterranean area for examples. During the landing on the Atlantic side of North Africa part of the naval and military aviation attacked hostile columns on the roads and troop bivouacs. An example of com-

binning first and second priority phases in one air mission is seen in the attack sent against an inland airdrome. While en route to the target a hostile column of troops was sighted moving to the coast. The aircraft hit their target and then strafed the column on the way to their base.

In the operation for Tunisia the air forces continually hit the enemy sea-borne supplies both on the sea and in port. Released photographs of the harbor at Tunis show the effect of air attack. Also the Axis attempts to reinforce and supply its forces by the use of huge six-motored air transports were countered by our air forces. During this operation the Allied air forces pounded Palermo and Messina to catch the enemy supplies and troops before the movement got under way. Released photographs of Palermo point up the effectiveness of air attack of second priority targets.

Prior to and during the Sicilian operation other communication targets were attacked. Railroad yards and the docks and ferry slips at Messina were pounded into uselessness. Enemy motor transport on the roads were also attacked.

In the present Italian campaign every conceivable type of enemy lines of communications and supplies have been attacked. Railroads have been bombed in the narrow confines of the Brenner Pass both at the German end and the Italian end. The railroad yards near Rome have been blasted several times. In addition, newspaper releases describe the fighter sweeps against individual trains in which engines and ammunition cars have been destroyed. Highway bridges have been blasted away between troops and their supply bases. Motor transport of all descriptions have been destroyed on the highways. During the recent winter freezes and snows, which stalled enemy trucks on the roads, the air has been able to attack the same convoy again and again until the last vehicle was destroyed.

True, the enemy is still moving troops and supplies. He has not surrendered for the lack of them. What then is this "isolation of the battlefield"? It is the delay of troop movements. It is the sapping of the enemy's strength by causing him to expend effort in railroad repairs and the construction of highway detours. It is the destruction of matériel which the enemy is hard-pressed to replace. A consequence of the enemy's ability to recover from attacks on his supplies and lines of communication is the necessity for continuing second phase operations throughout the campaign and for coordinating aggressive ground action with these attacks.

III. JOINT AIR AND GROUND OPERATIONS IN THE BATTLE AREA

The third phase of the air mission is to assist the ground forces in the accomplishment of the ground mission in the battle area. Through cooperation and joint planning of the air and ground staffs, major ground objectives have been seized.

Drawing again on reports from the Mediterranean area, we have first the Eighth Army success at El Hamma. There all available air power was placed against the enemy troops, tanks, artillery, and vehicles in the narrow valley on the immediate front of the Eighth Army's main attack forces. The attacks by fighters, bombers, and "tank busters" reached a peak just before the zero hour for the ground attack. When the ground forces moved forward the enemy started pulling out. When his vehicles cluttered the roads to the rear, our air spread destruction among the withdrawing enemy.

An example of air employment in the defense came when Rommel made his thrust through Kasserine Pass. At one phase of Rommel's advance it looked as if he would seize our supply point at Tebessa. Here again all available air forces were massed in attack against the enemy ground forces, particularly against the enemy's vehicles in the narrow defile of Kasserine Pass. This, combined with aggressive ground action, reduced the salient.

Later in the Tunisian campaign the spectacular advance of the II U.S. Corps to seize Bizerte was preceded by a full day of air attacks on a narrow front. Over 2,100 sorties of all types of aircraft loosed bombs and machine guns against enemy troops, artillery, and defensive lines. The ground advance was made with comparative ease.

In Sicily the enemy was holding up the center of our line at Troina. Air attacks in mass were directed against the enemy in the town for days. The opposing lines were so close that the air commander went to the line of battle to direct the air attacks against vital targets. The town was reduced to rubble and our troops advanced.

Last but not least in our examples of air intervention in the ground battle is the assistance given the Fifth Army at Salerno. The ground forces were having difficulty holding the beachhead. Enemy reinforcements were on the way to add to the Fifth Army's opposition. All the available air forces including elements of the strategic air force were sent in to attack everything on the enemy side of the line of contact. Important in turning the tide of the ground battle was the delay of the enemy reinforcements until more Allied forces were put ashore.

All these examples of air assistance to ground operations emphasize two things. First, air power is flexible regardless of military designation of types of aviation. Second, it must be employed in mass on a relatively narrow front for full effect. To realize these important capabilities, it follows that air cannot be allotted to each of several ground units. In other words, there should be one commander under the theater commander with the ability to concentrate the effort of every combat aircraft in the theater on the front of the main effort.

IV. CHANGES IN TECHNIQUE

The doctrine expressed in FM 100-20 has not de-

creased the amount of cooperation and mutual dependence of one arm on the other. In fact, battlefield experience shows that both arms are exploiting their special capabilities in an effort to secure a common objective—the defeat of the enemy.

Turning again to examples in the Mediterranean area, we can examine certain improvements in battlefield technique to prove our point. First, consider aerial reconnaissance, which is the responsibility of air forces. During the first part of the North African campaign we had a small unit of reconnaissance aviation employing the technique of our old corps observations. The enemy air opposition made this technique too expensive in aircraft and crew losses. The requirements of the air battle took even this reconnaissance away, but in its place grew up our present reconnaissance by combat planes, principally fighters, which could use their high speed for defense. During this period photographic reconnaissance began producing an increasing amount of combat intelligence required by ground forces. This was developed by a wing of both American and British photo reconnaissance units of fighter aircraft using both speed and altitude for protection. It is estimated that fully 70% of all combat intelligence in the Mediterranean area is now produced by aerial photographic reconnaissance. This improvement was accomplished though the command of all air power was vested in the air force commander.

Another example of air power serving as eyes of the ground forces occurred in Italy after the landing at Salerno. The crowded beachhead had long-range corps artillery emplaced on an advanced airfield of a tactical reconnaissance air unit. The artillery wanted to take a vital German target under fire, but the artillerymen could not get observed fire. The artillery staff and the small air unit arranged to try adjustment of fire with a fighter-type reconnaissance airplane. Communications difficulties were overcome by the loan of an Air Corps radio to the artillery fire control component. By experiments in the synchronization of airplane maneuvers with the flight of the artillery projectile, fire was adjusted on the target in short order and the target destroyed.

True, this was performed by the relatively slow observation airplane in the pre-war days, but the change in equipment (from the two-place airplane with a trained artillery observer to the single-seated fighter) was thought to preclude artillery adjustment by the single pilot. Now all air force reconnaissance pilots are trained to spot long-range artillery fire. This is in addition to the artillery adjustment performed by liaison type airplanes for divisional artillery.

Right here it seems appropriate to cite a recent example in which the situation described was reversed—the artillery directly assisted air operations. In the Cassino sector of the Fifth Army, A-36's and P-40 Warhawks of the Tactical Air Force were bomb-

ing and strafing German artillery positions on the far side of Mt. Chiaia which the flat trajectory of corps artillery could not reach. To reach their target the fighter-bombers had to fly over an enemy area alive with antiaircraft. It was imperative that the aim of the pilots should not be upset by flak since they were bombing close to Fifth Army troops. So by arrangement, American artillery opened up on the German antiaircraft shortly before the first wave of A-36's flew over. The German antiaircraft gunners dived for their foxholes and the dive bombers and fighter-bombers attacked their targets with 500-pound and fragmentation bombs practically unmolested.

Daily the newspapers and the radio emphasize the difficulty of supply of ground troops in the mountains of Italy. Here, too, the air has assisted with this ground problem. Troop Carrier aviation normally has the function of supplying isolated troops, but here the ground troops were very small patrols in mountain passes and near enemy antiaircraft to which the relatively slow troop carriers are vulnerable. So the forward fighter units dug discarded auxiliary fuel tanks out of the salvage pile. After experiments with various loads of K rations, small-arms ammunition, and dunnage, and after practice in releasing the supply-packed belly tanks, the needed supplies were delivered to practically the forward foxholes of our hungry ground troops with only a small loss due to breakage.

Airmen play up the status of air alert for aircraft as highly wasteful of air power, which it truly is, but it does not follow that it cannot be used under certain conditions. A recent news dispatch describes a "cab rack" technique of air alert used by RAF fighter-bombers in the battle area of the Eighth Army. In this operation the fighter-bombers cruised in formation over the battle area loaded with a predetermined size of bombs. On call of a control agency of the Tactical Air Force several airplanes at a time were called down from their "cab rack" to attack certain German defensive means holding up the advance of Allied ground troops. This was repeated each time a new German machine gun or mortar exposed itself by opening fire.

The reader must realize that each of the operations described was preceded by detailed planning by air and ground staffs working together. Through daily conferences throughout the campaigns the air and the ground staffs developed mutual understanding and regard for the other's part in gaining the common objective. Their planning, particularly of air operations in the battle area, must set up a common method of target designation, a bomb-safety line which is rigidly adhered to by both forces, and a workable system of aircraft identification.

Lest the reader get a false impression of unlimited capability of air power from this discussion, the writer wishes to point out that our air forces enjoy

a degree of air superiority in the Mediterranean area unequaled in other theaters of operation. In other words, the first priority phase of the air mission requires but a small part of the air effort. Also, suitable and profitable targets for the second priority phase—prevention of enemy troop and supply movement—no longer exist in any number. Finally, the degree and continuity of air operations is limited by the number of suitable air bases and the severity of the flying weather. However, we can look for further increase of ways and means in which air forces

may assist in the accomplishment of our objective—defeat of the enemy. As a high military commander of combined forces recently said, "Neither the air nor the ground forces yet realize the full capabilities of air power in modern warfare."

In conclusion, we see that the setting up of air power and ground power as co-equal, and the fact that the command of each is reserved to members of its own arm, has not resulted in a cleavage between the two forces on the battlefield. They are united by a common objective—defeat of the enemy.

War Medicine in Russia

COLONEL Elliott C. Cutler, M.C., Chief Consultant in Surgery, European Theater of Operations, writes in Medical Bulletin No. 5, 1 June 1943, Office of Chief Surgeon, E.T.O., about Soviet military medicine. Colonel Cutler says that, at the time of the first World War, Russia had thirteen medical schools and 24,000 doctors. A great effort in medical education followed that war, and in 1940 Russia had seventy-two medical schools and 160,000 doctors at home, half of whom were women. In addition to these doctors, Russians trained some 400,000 *feld-shers*, most of whom are women who have had about one year's training in medicine and first aid. In the German occupation of west Russia, great care was taken to move their medical schools eastward; that the occupation did not hamper medical education, at least as regards numbers, was seen in the fact that Russian medical schools graduated in the year 1942, 15,000 doctors, and in May 1943, 24,000 doctors.

CASUALTY STATISTICS

The author then points out that information concerning military medicine with our ally, Russia, is fragmentary and frequently not obtained through the scientific press, but the astonishing claims made deserve careful scrutiny by the military surgeons of all nations. The Russians claim, it is said, that in the present war some seventy-five percent of the injured are returned to duty. Russian sources state that casualties are largely from bombs, mortar fire, and hand grenades and that bullet wounds are comparatively rare. Mortality rates quoted show a reduction in mortality rates over the last war as follows: brain, skull, and jaw—thirty-five percent to five percent; an improvement in gastric and thoracic mortality of over fifty percent; an improvement in injuries of the spinal cord of over eighty percent; of all Russian wounded, one and a half percent have died.

Colonel Cutler then outlines the medical-military organization and structure of the Soviet Army Medical Service, which does not greatly deviate from the British and American systems. Information available emphasizes their effort toward the speediest removal of the wounded from the scene of action. Nothing but emergency procedures are done at the front line itself. They have made a great attempt to care for the lightly wounded, who by-pass all hospitals after leaving the division and go directly to special hospitals where expert services are provided for these important people who are returned to duty.

CURING BY MILITARY DRILL

The desire of the Russian Army to get the lightly wounded back into service as soon as possible is emphasized by their rehabilitation centers, where they speak of "curing by military drill." Wounded who cannot get out of bed spend their time assembling and taking apart machine guns, but those who can walk go through strict military drill daily.

GENERAL MEDICINE

Colonel Cutler closes his report by saying that the importance of the medical aspects of the masses of men in the Soviet Army has not been neglected, and experts in internal medicine hold high position in the army. Colonel Cutler mentions the great development of hygiene in general in Russia. They speak with disgust of the filth and dirt left behind by the Germans, and, after recapture, a spot must be considered a typhus center and disinfected by medical units before it can be considered out of quarantine. Admiration for American surgery appears in the documents seen. This is in part due to their gratitude for surgical instruments and medicines shipped to Russia from American sources.

(From *The Bulletin of the United States Army Medical Department* November 1943.)

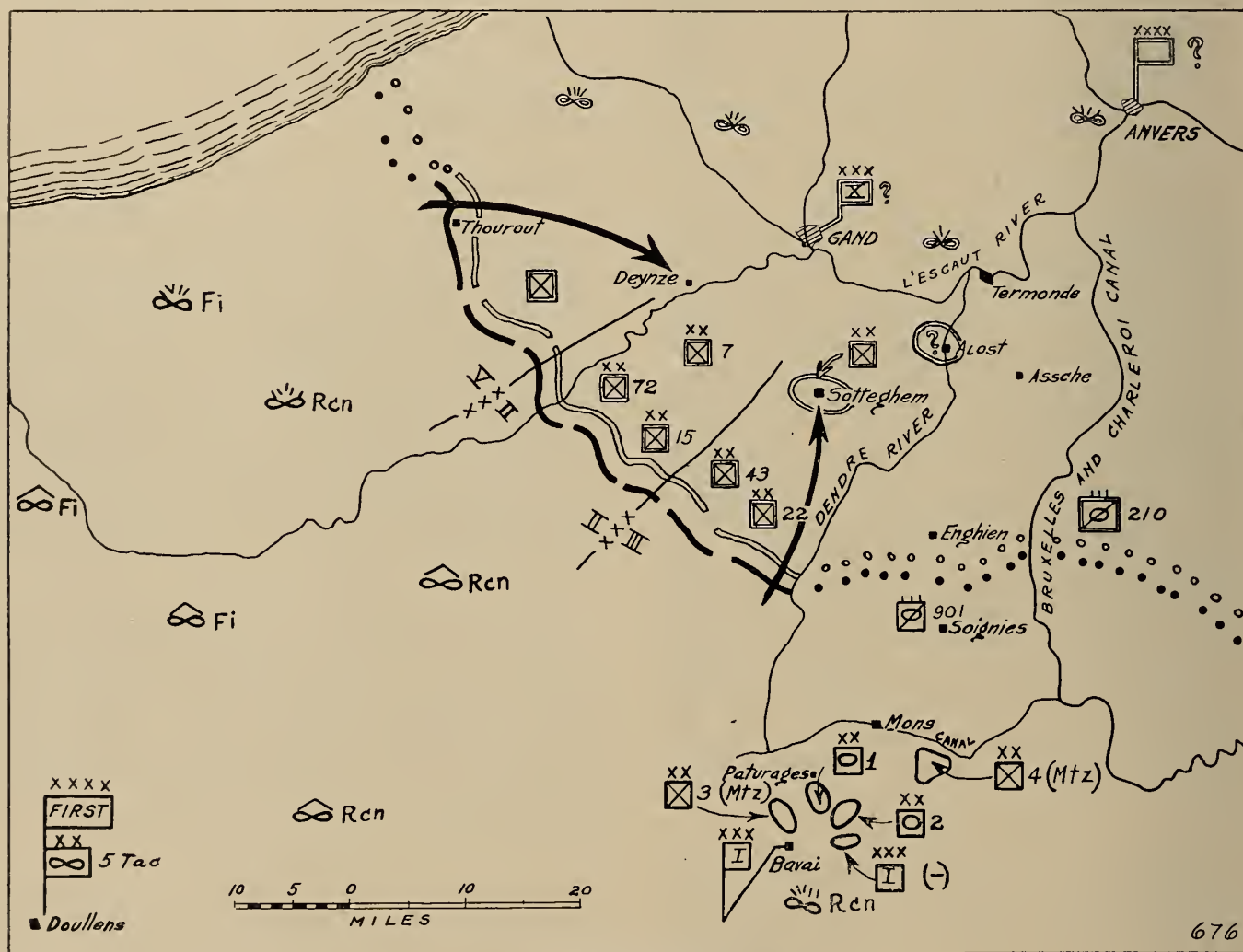
Armored Division in Offensive Action

MAJOR J. A. MCCHRISTIAN, *Infantry*
Instructor, Command and General Staff School

EVERYDAY, somewhere, a group of army officers is discussing the employment of armored forces. Let us assume that we are present at one of these discussions. We are considering the employment of an armored division in offensive action. The tactical situation is as follows:

Allied and Axis forces both have armored units

porarily motorized), and attached tank destroyer, engineer, and antiaircraft units, is moving into the Bavai area under cover of darkness to participate in the continuation of the attack. The corps concentration will be completed prior to daylight of the 29th. Five air parties of the 5th Tactical Air Division are available to the I Corps.



SITUATION MAP A.
SITUATION AT 1930, 28 OCTOBER.

and tactical aviation. The Allies have air superiority.

Reinforced by the V Corps, the First Army resumed the offensive early the 28th of October with main attack in the general direction Thourout—Deynze. The attack made some progress against the hostile west flank with little change on the remainder of the front. At 1930, 28 October, the situation was as shown on Situation Map A.

The 901st Cavalry Group (4 Rcn Sqs, Mecz) protects the east flank of the First Army.

The I Corps, consisting of the 1st and 2d Armored Divisions, the 3d and 4th Infantry Divisions (tem-

The following are extracts of orders issued by I Corps:

"First Army continues Atk early 29 Oct, enveloping hostile flanks."

"V Corps resumes Atk 0600, 29 Oct seize Deynze."

"III Corps Atks 0600, 29 Oct seize high ground vicinity Sotteghem."

"5th Tactical Air Div supports First Army and will protect Adv I Corps."

"I Corps Atks 1000, 29 Oct between Dendre River—Bruxelles-Charleroi Canal. Disrupt Coms between Anvers and Gand S of L'Escaut

River and then operate rear area hostile forces W Dendre River. Formation: 1st Armd Div, and 3d Inf Div (Mtz), Reinf, abreast (3d Inf Div echeloned left rear); 2d Armd Div, followed by 4th Inf Div (Mtz), in rear of 1st Armd Div."

"901st Cav Gp, when passed thru by leading Elms I Corps is Atchd to that corps."

"1st Armd Div, crossing line now held by 901st Cav Gp, will capture bridge and RR center vicinity Termonde and disrupt Hwy and RR Coms between Anvers and Gand. Be prepared move SW from Termonde area to cross Dendre River and operate against rear Gand forces on corps order."

"3d Inf Div (Mtz), Reinf, crosses line now held by 901st Cav Gp abreast of the 1st Armd Div to protect W flank of corps and seize crossing over Dendre River vicinity Alost."

"2d Armd Div follows 1st Armd Div and occupies high ground vicinity Assche."

"4th Inf Div (Mtz) (-) initially follows 2d Armd Div."

"Dets of 4th Inf Div (Mtz), under corps control, will establish east flank protection for corps along Bruxelles and Charleroi Canal."

The following units are attached to the 1st Armored Division: 131st Tank Destroyer Battalion, Self-Propelled; 132d Tank Destroyer Battalion, Towed; 151st Antiaircraft Automatic Weapons Battalion, Self-Propelled; 961st and 962d Quartermaster Truck Companies.

Before we take up the 1st Armored Division, let us get the army picture fixed in our minds. The First Army launched an attack with its main effort by the V Corps on the 28th of October. On the 29th of October that corps is to continue its effort and at the same time the III Corps is to attack on the east flank. The II Corps continues to exert pressure along its front. Later, on the morning of the 29th, the I Corps attacks.

Note how the army has set the stage for the I Corps. The action of the V Corps one day ahead is to draw hostile reserves away from the vital east flank. On the morning of the 29th, both hostile flanks are struck. In other words, army is executing a double envelopment or pincer movement. It is hoped that this attack will not only drive in the hostile forces, but also will cause the enemy to commit his general reserves. Finally, later on the morning of the 29th, the I Corps attacks as an outside pincer of the III Corps attack, swinging up around the east flank of the Axis position in order to get deep into the hostile rear so that exploitation operations can be initiated. The attack of the I Corps is delayed until 1000 so that the attention of the enemy is drawn to the front west of the Dendre River.

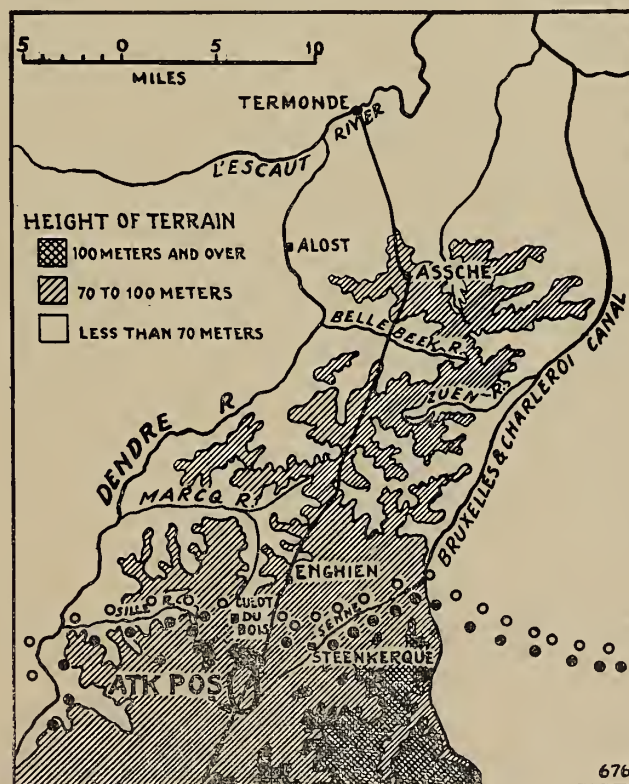
Let us take a moment and see if the mission assigned the I Corps is proper. In that connection

paragraph 1103 of Field Service Regulations, FM 100-5, has this to say:

"All armored force attacks contemplate the rapid transfer of shock power and protected firepower into the vital part of the hostile rear area from an unexpected direction. The attack is launched in mass in a decisive direction with such speed and violence that the enemy is afforded no time or opportunity to organize and coordinate his reaction before the armored attack mission is accomplished. Such attacks produce early, hostile demoralization and decisive results."

If we can get across the unfordable Dendre River we certainly will be in the vital part of the hostile rear. The I Corps has been concentrated under cover of darkness and with the utmost secrecy. Our chance of surprise therefore appears to be good. No doubt the enemy has an idea that something is moving into the Bavai area. But since we have air superiority, he must, at the best, have something less than complete information of what we are about.

Now let us consider the order issued by the I Corps Commander. Why did he elect to attack in the following formation: the 1st Armored Division leading,



MAP B.

followed by the 2d Armored Division and the 4th Infantry Division in turn, and the 3d Infantry Division abreast of the 1st Armored Division? (See Map B.)

In the first place, the terrain dictates that formation to some extent. It is quite apparent that the ridge in the vicinity of Culot du Bois and to the east of that town is the only area leading to the corridor between the Dendre River and the Bruxelles-Char-

leroi Canal where we will not have to cross streams immediately after the jump off. With the Axis cavalry holding the Senne River and the Sille River to the west, it would be extremely dangerous to launch an attack against such potential obstacles. Time does not permit us to clear a path with the infantry, then pass the tanks through later. We want to get deep into hostile terrain before the enemy has time to react. This means, of course, we want to lead with tanks if at all possible.

Already we have discussed partially why an armored division should lead—that is, because speed is essential. The 1st Armored Division must quickly get to an area where it can perform that part of the corps mission which calls for disrupting communications between Gand and Anvers. In addition to carrying out this first part of the corps mission, the 1st Armored Division might be considered as the advance guard of the corps. It must insure the uninterrupted advance of the corps. In so doing it will incidentally assist the advance of the 3d Infantry Division on the west by threatening the flank of any forces opposing the advance of that division. If the 1st Armored Division is successful in seizing Termonde the corps will be deep in the hostile rear from where exploitation operations can be initiated.

The second part of the corps mission is to operate in rear of the hostile forces west of the Dendre River. Since that stream is unfordable it means that river crossing operations will have to be undertaken. An infantry division is far better suited for this work than an armored division. Therefore it is logical to have an infantry division, the 3d, echeloned to the left rear, so that it can launch its river crossing as early as possible in order to get the corps across the river with minimum delay. The 3d Infantry Division will advance to the vicinity of Alost as rapidly as possible. Next in column is the 2d Armored Division. It has the mission of getting to an objective, then being ready to cross the river into the hostile rear on corps order. The 4th Infantry Division (-) is the last in column. It will turn out of column early in order to get to the unfordable Bruxelles-Charleroi Canal and protect the right flank of the corps north to the L'Escaut River from the hostile force known to be in Anvers.

So far we have busied ourselves with the operational plan from the viewpoint of army and corps. Our plans could not be considered complete without examining the part played by the 5th Tactical Air Division. It will suffice, at this time, to outline the mission of the tactical air division and to tell how it fits into the picture.

"The mission of the tactical air division consists of three phases of operations in the following order of priority:

"First Priority:

To gain the necessary degree of air superiority.

"Second Priority:

To prevent the movement of hostile troops and supplies into or within the area of operations of First Army. (This is the 'isolation of the battlefield.')

"Third Priority:

To participate in a combined effort of the air and ground forces, in the battle area, to gain objectives on the immediate front of the ground forces."

The air staff of the 5th Tactical Air Division and the ground staff of the First Army together planned missions to be flown on the day of the attack. Later on, when we take up the advance of the 1st Armored Division, we shall see how this affected their operations.

Now let us consider the operational plan of the 1st Armored Division. First of all, we have already indicated that the best front for us to pass through the 901st Cavalry is between Culot du Bois and Steenkerque. We have agreed that we must lead our attack with tanks. Now there are two general formations we can adopt. They are combat commands in column or abreast. What formation shall we recommend?

In the first place, we know that the terrain will permit us to use either of these formations. Therefore, maneuver room is of no concern. We are also aware that speed is of the utmost importance. By advancing with combat commands abreast we shorten the time length of the division. This will permit the corps to arrive deep in the enemy rear in strength sooner than would be possible if we used a formation in column. We know now that the enemy has cavalry confronting us. It appears unlikely that he will have large forces to the east of the Dendre River to oppose us, because he is having difficulty in maintaining his position. Let us keep in mind, however, that if the hostile force confronting us was larger or if later developments prove that the enemy has more forces east of the river than we now believe, a formation of combat commands in column would be better.

The next point in question is what tactical groupings shall we specify? For matters of discussion let us consider two basic organizations: the first, balanced organization, which sets up three tactical groupings of approximately equal strength; the second, unbalanced organization, which creates one combat command with the bulk of the infantry and artillery, and the other combat command consisting mainly of the bulk of the tanks with some supporting arms.

The former organization is very flexible and facilitates decentralization for exploitation. Each combat command is a small task force of all arms capable of limited independent action. The main disadvantage is that each combat command does not have sufficient strength to overcome strong enemy re-

sistance placed in depth, especially if these defenses include minefields and many antitank guns.

The latter organization lends itself to sustained action against strong resistance. The combat command consisting of the bulk of the artillery and infantry forms a base of fire to support the advance of the other command made up of the bulk of the tanks.

Realizing that the hostile defensive means on our front and in our zone of advance are light, it appears that we do not need an unbalanced organization. Therefore, in order to insure that our advance will be as rapid as possible let us select the balanced organization.

The scheme of maneuver for each combat command will be for it to advance in its zone as rapidly as possible. The divisional commander can control their advance by the use of report lines and phase lines. These control lines enable the divisional commander to insure that the combat commands will not become so far separated that they would not be within supporting time of each other in the event of unexpected strong resistance—in other words, to insure that the division be concentrated in terms of time.

The divisional commander also has the reserve command which he can use to influence the operation.

We have mentioned *speed* throughout our discussion. Perhaps, it would be advisable for us to digress a little just to clarify any misapprehensions as to what is meant. We realize that our rate of advance, at its best, could only be ten to fifteen miles an hour. With an occasional hostile antitank gun and some well placed mines in our zone of advance, this would rapidly decrease. In this particular situation we might consider that our advance would be, on the average, from three to five miles an hour. If this is the case, why do we say "speed"? Our only reason is the comparison of this rate of advance with that of an infantry division fighting its way forward on foot, which would do well to average one mile an hour.

Let us assume that one of us joined the 1st Armored Division just prior to this operation and that he is relating a few points of interest as follows (see Situation Map A):

"At 0800, the 29th of October, the leading elements of the 1st Armored Division left the bivouac north of Bavai. I accompanied CC-A.* It marched in two columns.

"The march to the attack position was uneventful except for a few observations which I should like to mention.

"The first, and no doubt the most impressive observation I recall, was seeing the results of the foresight in planning on the part of some unknown staff officers. At every crossroad there was an MP

directing traffic; wreckers and recovery vehicles were spotted along the roads; antiaircraft artillery was in position at all critical points; all bridges and culverts had been reinforced; in fact, along the canal and east of Mons, I saw two spare ponton bridges under cover ready to be put into position just in case the permanent bridges were destroyed.

"Just seeing these achievements, resulting from the combined efforts of thousands of men, was enough to instil confidence in the most skeptical.

"Around 0900 some of our fighters passed overhead. I was informed, by the S-3 (Air) of CC-A, that this was the first of two prearranged fighter sweeps by the 5th Tactical Air Division. The purpose of this fighter sweep was to maintain air superiority by destroying enemy planes operating in our zone of advance.

"I had read a report the other day from the divisional commander of a British armored division in which he wrote: 'The greatest blessing which the RAF can confer on an armored division is immunity from the enemy's air. This gift is priceless since it enables the armored division to take liberties with the enemy's air force and move in far closer and in a more compact manner than could be done if wide dispersion was necessary.'

"This is a fact which I had often overlooked. I always thought of air support as the dropping of bombs on hostile resistance immediately in front of our advancing troops.

"The British divisional commander went on in his report to say relative to close bombing support of the advance of the armor: 'The definition of the bomb line is often difficult and the tendency is to allow a little margin of error. The best results are obtained by directing the Air Force on targets found by the air outside the close support of the advance—this indirectly assists the armor very materially.

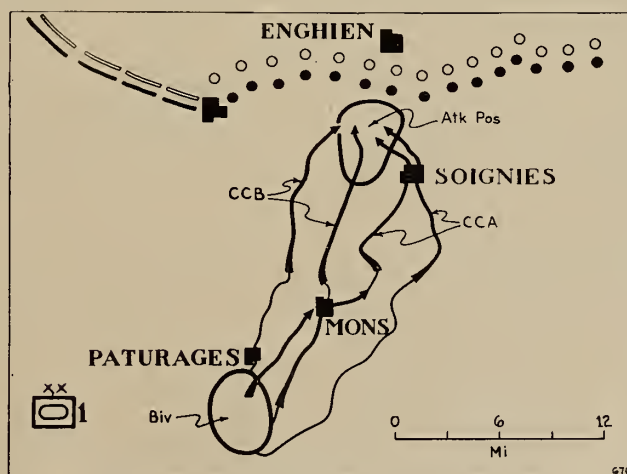


FIGURE 1.

Complicated arrangements for close bombing support do not work during a rapid advance and the type of thing that holds up the armor, such as the antitank gun, is almost impossible to spot on the ground sufficiently accurately to describe to the air.

*CC-A is the accepted abbreviation for Combat Command A.

Therefore, do not expect pin-point bombing but be grateful for the loosening effect of bombing farther back which you may not even see.'

"We were well aware of this support from two points of view. In the first place, we had no interference from enemy air. In the second place, we continually received information of the enemy through the air party with our division.

"The leading elements of CC-A arrived in the attack position about 0920. At that time I saw the operation map being kept by the S-3. His map showed this picture (see Figure 1).

"The division was marching in four columns. The road density was 20 vehicles to the mile. CC-A was marching on the two east routes and CC-B on the two west routes. The Reserve Command was following on the two center roads.

"The road distance from the bivouac area south of Paturages to the attack position for the east column of CC-A was 25 miles. This gives a fair picture of the amount of road space covered by an armored division. The tail of the division had not cleared the bivouac area when I arrived in the attack position.

"In addition to the movement of the 1st Armored Division, detachments of the 4th Infantry Division, under corps control, were moving into position to the east, while the 3d Infantry Division to the west was moving up.

"The corps commander had stressed the point that he desired the 1st Armored Division to advance on Termonde as rapidly as the situation would permit. The rapid advance of the 1st Armored Division would mean that the enemy would not be afforded much time to coordinate and organize his reaction to the corps advance.

"All available information of the enemy indicated that he was having difficulty maintaining his position west of the Dendre River and that no large concentrations of hostile troops were east of the Dendre River.

"Now back to the scheme of maneuver of the combat commands. Since they are advancing abreast a boundary was designated delimiting their respective zones. Let us consider the scheme of maneuver of CC-A.

"In balanced organization, CC-A would have the following units:

- Headquarters and Headquarters Company, Combat Command A.
- 1st Tank Battalion.
- 1st Armored Infantry Battalion.
- 1st Armored Field Artillery Battalion.
- A Company, 1st Armored Engineer Battalion.
- A Troop, 1st Cavalry Reconnaissance Squadron, Mechanized.
- A Company, 132d Tank Destroyer Battalion, Towed.
- A Battery, 151st Antiaircraft Automatic Weapons Battalion, SP.

Maintenance, Medical, and Supply elements.

"The scheme of maneuver of CC-A is partially shown in Figure 2.

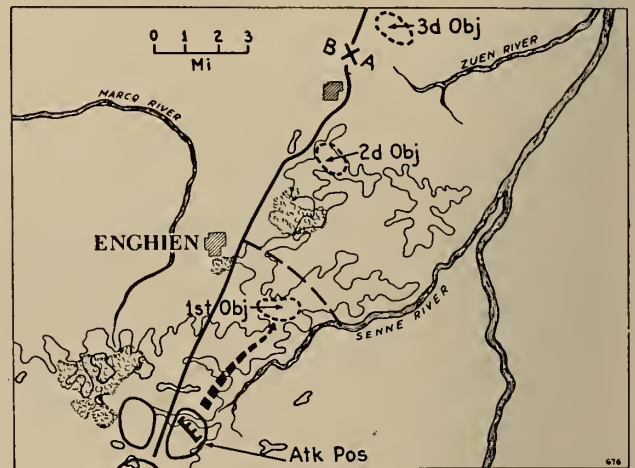


FIGURE 2.

"The head waters of the Senne and Marcq Rivers originate in the high ground in the vicinity of our attack position.

"Our attack position was masked from hostile ground observation.

"The commanding general of CC-A designated a series of limited objectives north to Termonde. The first three are indicated here. They were selected on key terrain.

"The artillery symbol shown in the attack position represents the base of fire (explained later) of CC-A. The arrow illustrates the action of the maneuvering force. The dotted line delimits the maximum effective range of the artillery in the base of fire.

"This is a good time to repeat what one of the division staff officers told me. He said that, 'even though much resistance is not expected, armored units do not line up at a start line and charge off to their

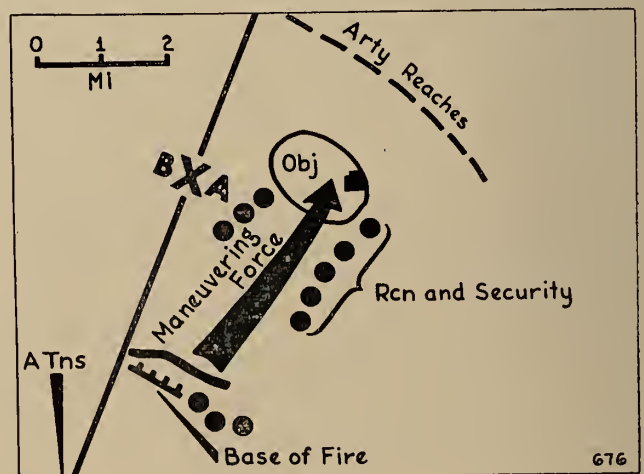


FIGURE 3.

objective at the word "go." Their scheme of maneuver should be thoroughly planned.'

"Let us take a more detailed look at the tactics involved in this scheme of maneuver. Figure 3 shows schematically the area from the attack position to include the first objective.

"The A trains* of CC-A were back in the attack position. The base of fire occupied the high ground just north of the attack position and immediately in rear of the line of departure.

"The purpose of the base of fire was to establish a firm base from which the bulk of the artillery therein implaced could support the advance of the maneuvering force all the way to the objective. In addition, this firm base of artillery, infantry, antitank guns, and other arms was dug in and organized for all-around defense. It was a strongpoint around which the maneuvering force, if unsuccessful, could rally; it was a strong pivot around which the maneuvering force could operate.

"The base of fire was provided with reconnaissance and security elements to insure the integrity of the position as well as to provide the necessary security when it displaced forward.

"The maneuvering force consisted of the bulk of the tank battalion, the infantry battalion (minus one company), one platoon of towed tank destroyers, and the reconnaissance troop. As it advanced, reconnaissance and security forces operated on the front and flanks.

"The tanks overrun the objective. They are followed closely by the armored infantry in half tracks.

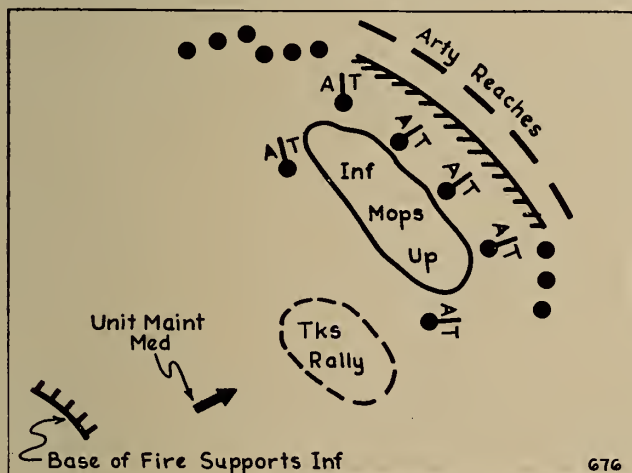


FIGURE 4.

"When the infantry arrives on the objective the tanks rally generally in a position in rear of the objective (see Figure 4). While the tanks are rallying, the infantry mops up. Antitank guns are emplaced for all-around defense. In fact, this position is organized as a strongpoint or the start of the base of fire that will support the advance to the second objective.

"The base of fire continues to support the infantry during this action.

"At this time unit maintenance and medical elements from the A trains go forward to the tank rally position. The wounded are removed from the tanks and placed on the axis of evacuation. The maintenance takes care of minor repairs. Disabled vehicles are towed to the axis of evacuation.

*A trains include vehicles which are essential for combat, such as company maintenance, fuel, lubricants, and ammunition trucks.

"Coming closer to reality, Figure 5 is to correct any misunderstanding as to how the armored infantry goes about mopping up. It can fight from its ve-



FIGURE 5.

hicles but it still does most of its fighting on the ground. It cannot run a gauntlet of hostile antitank guns. The half track provides safety against small-arms fire and shell fragments only.

"When the position on the first objective is organized, the base of fire displaces to the first objective (see Figure 6). Normally, then and not until then should the maneuvering force advance to the second objective.

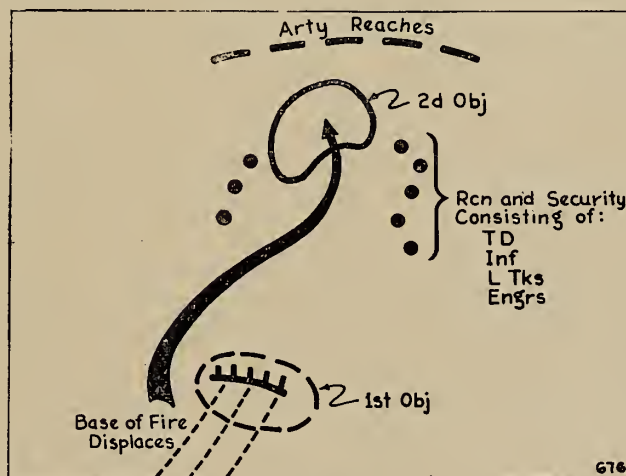


FIGURE 6.

"Depending upon the amount of reorganization required by the maneuvering force, the time needed for the base of fire to displace may or may not delay the advance.

"Once the base of fire has displaced and is established on the first objective, the complete cycle is repeated. The maneuvering force advances to the second objective. Reconnaissance and security elements provide all-around security.

"If enemy resistance is light, the several stages in the scheme of maneuver that I have just outlined will not actually develop. The base of fire might follow close behind the maneuvering force or displace forward by echelon. In the latter case, it might be de-

sirable to have one battery of the artillery accompany the maneuvering force.

"During the advance of CC-A to the north, very

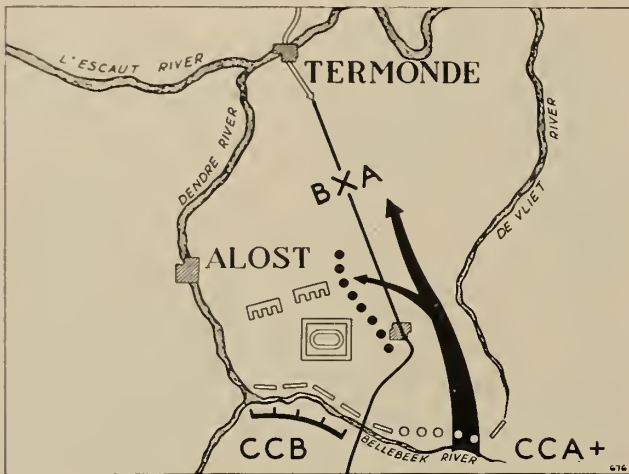


FIGURE 7.

little resistance was encountered until we reached the Bellebeek River.

"CC-A and CC-B ran up against strong opposition along the Bellebeek River (see Figure 7).

"Prior to this time our air kept us informed of enemy movements. We were notified that enemy armored and infantry units moved southwest from Anvers. This force was bombed by our air and was somewhat disorganized and slowed up. Our air bombed the bridges over the L'Escaut River at Termonde. However, this enemy force succeeded in

throwing some pontons over the river and we were now being opposed by what appeared to be a strong advance guard of a Panzer division. The bulk of the hostile division was not yet across the river but was in the process of crossing.

"The divisional commander ordered the following action:

"CC-B was to form the base of fire for the division and was reinforced with the infantry and artillery battalion from the Reserve Command. CC-A was to attack in its zone of advance to prevent any further hostile troops from crossing at Termonde. CC-A was reinforced with the tank battalion and self-propelled tank-destroyer battalion from the Reserve Command.

"It might be interesting to note the firepower available for this action. CC-B had the equivalent of 33 field artillery batteries while CC-A had the equivalent of 47.

"The attack was carried out as shown in Figure 7.

"With the enemy forces driven north of the L'Escaut River, the corps continued on its mission.

"By nightfall the 1st Armored Division was reorganizing, the 2d Armored Division was on its objective, the 4th Infantry Division was protecting the north and east flank of the corps, and the 3d Infantry Division had forced a crossing over the Dendre River in the vicinity of Alost.

"The corps was deep in the hostile rear from where exploitation operations could be initiated."

Allied Military Currency

ALLIED expeditionary forces, seeking to establish orderly relationships with the people of liberated Sicily, introduced into its occupied areas an "Allied Military Currency," speaking a "lira" language understood by every Sicilian trader and consumer.

It may now be revealed that a distinctive currency determined upon by British and American officials was made in the Treasury's Bureau of Engraving and Printing. It was rushed to the scene of action by huge transport planes and is being used as the medium of exchange in that part of Italy that we now hold.

This is the first truly Allied venture into the field of military monetary expedients and an undertaking without precedent so far as the United States is concerned. The distinctive lira currency will be used in the payment of troops of all the Allied nations on Italian soil, and in payment by the procurement services for local supplies.

Government officials said the undertaking is designed to give the occupied areas a currency in de-

nominations and terms which they know. It provides an adequate circulating medium in sections where there may be a shortage of local currency because of confiscation or destruction by retreating enemy forces, or from other causes. It avoids complication of the monetary system which use of foreign currencies might cause.

Previously, the United States forces in North Africa had used a regular "back home" currency with a distinctive seal, while the British had used a "military pound." Now, authorities of the Allied Nations have worked out this cooperative use of a single medium of exchange.

The currency is in eight denominations from one to 1,000 lira. The smaller denominations are half the size of United States currency, and the larger denominations the same size. It is made by a lithograph process, since the time element and the size of the undertaking did not permit steel engraving.

(Extract from an article in
The American Foreign Service Journal.)

“As They Say Here, Aloha”

MAJOR GEORGE P. WINTON, JR., *Field Artillery*
Instructor, Command and General Staff School

I'M NOT allowed to tell you where we are, but as they say here, Aloha." Thus a censor-conscious soldier is said to have ended a letter to his girl friend. Everyday many other soldiers, more subtle but no more conscientious, emulate him by sending classified information back to friends from overseas by means of private codes. This is just one more example of the extraordinary lack of discretion among our people.

Most Americans love to talk. In order to secure an attentive audience, most of us try to talk about things that will interest those around us. The things that soldiers can talk about best are things military, hence that is what they usually do talk about, especially when with a nonmilitary group. The result is a veritable windfall for the enemy agent. This agent, incidentally, is usually not the brilliant mustachioed villain of screen and story who is out to get the complete invasion plans. Instead he appears to be a "typical American" who hangs around bars and restaurants and listens to people talk.

An inevitable result of the current war has been to entrust dangerous secrets to people who never knew any before, never considered the matter at all, in fact. Many of them do not even recognize the information they possess as being a dangerous secret. The soldier mentioned in the first paragraph, for example, assumed that because he knew the location of his own unit, everyone did. Yet the presence of that unit in Hawaii might be exactly the indication needed by the Japanese for a complete line-up of our dispositions. Our people as a whole have not yet learned to regard military intelligence as a jigsaw puzzle affair, where one small, apparently irrelevant scrap of information may form the missing link in a chain leading to a complete picture.

Our soldier made another common mistake in assuming that because his girl friend was a loyal American she would not disclose this information to the enemy. The flaw in his logic is obvious. The soldier himself was loyal, yet he made an unauthorized disclosure. Surely the girl can be expected to follow suit. Most of our citizens are loyal; few are really discreet. Your best friend may give away information without realizing that he is doing so—so don't let him have any of Uncle Sam's secrets.

We try hard to instill *esprit* and enthusiasm in our personnel because it is a most essential factor in building a fighting machine. Yet this very enthusiasm sometimes works against us by encouraging people to talk too much. The man that likes his work likes to talk about it. If he happens to be talking to a skilful listener, he can easily be led into a technical

discussion where he unconsciously tries to impress by revealing his technical knowledge. This difficulty must be overcome by education and indoctrination, because the enthusiasm itself is too valuable an asset to be impaired.

The subjects to be avoided in casual conversation can be readily selected upon a little reflection. We must simply ask ourselves what the enemy wants to know, then consider what sort of loose talk is likely to give him the answers. We should avoid talk having to do with command, training, equipment, or movement of troops; harbors, ships, and cargos; aircraft; production, strikes, or sabotage; and, of course, details of actual operations which have not been released to the public. Unfortunately these subjects are the very ones that will get the loose talker an attentive audience. We should also avoid circulating rumors which might have a tendency to weaken our war effort. Among the types to look out for are rumors that stir up racial discussion, criticize or make fun of our allies, exaggerate the enemy's ability, or criticize our leadership or equipment.

Also, don't forget to *encourage others* to be discreet. If you think your best friend knows a secret, don't try to get him to tell you about it. It's his job to keep quiet and yours to help him.

Another important phase of security is the handling of classified documents. The rules governing this are given in AR 380-5 for all to see, yet they are not generally understood. In fact, many personnel who frequently handle such documents do not clearly understand them. There is nothing mysterious about the rules themselves, so perhaps this general ignorance is due to the unpalatable form in which they are presented. AR 380-5 contains thirty-five pages (not counting the changes) of typical AR verbiage—clear, precise, detailed, but not easy reading. Most people would rather handle the documents according to whatever procedure their predecessor used than take the trouble to wade through thirty-five pages of AR. Such an attitude, of course, jeopardizes our whole counterintelligence program. Some of the salient points contained in this AR will be brought out by answering the more common questions that arise in this connection.

What has to be kept locked up? Secret and confidential documents will be kept "in the most secure files available in a room kept locked when not in use." If the custodian has no such room, he should carry out the spirit of the regulation by at least keeping the documents in "the most secure files available." That is, he should keep them on his person, locked in a desk or a file or a trunk, or lacking other facilities,

he should hide them. Restricted documents will be "stored and handled in such a manner as to insure a reasonable degree of security." That is, restricted matter should be locked up when not in use, but if locked space is not conveniently available, such matter should be kept out of sight. Registered documents, whether secret, confidential, or restricted will preferably be kept in a three-combination safe. If such a safe is not available, they should be constantly kept under armed guard. Incidentally, WD Circular 372, 13 November 42, states that "field lock safes will be considered the equivalent of three-combination safes for the storage of registered documents for units serving in the field outside of posts and garrisons."

What happens if a classified document is lost? If it is only restricted, no official action need be taken. If it is confidential, secret, or registered, report the loss promptly to the commanding officer. The commanding officer will notify the office of issue by the fastest means available, unless it is only confidential and not of vital importance to operations. In any case, he will then make a thorough investigation, fix the responsibility, and send a report with his recommendation through channels to the Adjutant General. Reporting the loss to the commanding officer is of course easier said than done because he will seldom be pleased—nevertheless, it's a matter of duty. The reason for this rule is obvious.

Who can reclassify a document? The question frequently comes up when secret information from the fighting fronts is received. Often, by the time the document arrives via Washington and devious military channels, the information contained in it will have been released to the public. The natural reaction is to disregard the classification of the document. This is a mistake for two reasons. First, the document may contain some wheat among the chaff. Perhaps certain important details contained in the document have *not* been released to the public. Second, and probably more important, the regulation says that documents may be reclassified only by the authority making the original classification or a higher authority.

May classified documents be reproduced? Yes, unless instructions contained in the document prohibit reproduction, it may be reproduced. The reproductions will carry the same classification and be safeguarded as the original.

Who can authorize the destruction of classified documents? The regulation merely says "competent authority," meaning the officer commanding the headquarters or activity which actually has the documents.

How are classified documents destroyed? Restricted documents (non-registered) may be destroyed in any way that will prevent further use. All others are burned in the presence of the custodian and a witnessing officer. They then sign a certificate of de-

struction and submit it to the officer directing the destruction. If the documents destroyed were registered, the certificate is then sent to the office of record.

Overclassification is a common mistake. The regulation states the case concisely:

"Documents or matériel requiring classification under the provisions of these regulations will be assigned the least restrictive classification consistent with the proper safeguarding of the information or matériel concerned. Overclassification will be avoided since it causes unnecessary delay in the transmission of messages and depreciates the importance of classified information in the minds of handling personnel."

In the field, documents are handled according to the same principles that govern in garrison, though the details of application are necessarily modified. In the theater of operations, practically everything is classified, although it need not be so marked. If not marked, a document had better be considered restricted, unless it is a tactical message, in which case it is confidential. Secret and confidential documents carry the additional notation "*Not to be taken to the front lines.*" When appropriate, documents may be marked "*Not to go below division Hq,*" or "*Not to go below regimental Hq,*" etc. Material that is *not* classified, that is, material for release to the public, will be so marked and signed by a representative of theater G-2.

In tactical operations, all messages are either confidential or secret. Those not marked will be considered confidential. They are to be handled just as documents of these classifications would be handled in garrison, with the obvious modifications caused by the absence of locked rooms and three-combination safes.

FM 30-25, *Counterintelligence*, lays down practical measures to be taken by the combat troops in safeguarding information. Command posts are to be prepared to destroy all documents promptly when capture is imminent. Bivouac areas are to be inspected prior to departure to make sure that no documents or marked equipment are left behind. Personnel in the front lines, going on forward reconnaissance, or flying over hostile territory are to carry only the map and papers needed to accomplish the mission. Personnel are to be trained in the proper procedure to use when captured.

So much for the theory. In practice, as we all know, we fall far short. This is not because our ideas are faulty nor is it because our personnel don't know what should be done. The failure is entirely in execution. They just don't do it. We have instructed but we haven't convinced. This weakness, along with many others, shows up in our maneuvers. Time and time again the Blues have captured the Reds' operations orders. Dozens of units have been identified by means of personal letters found on "prisoners." Many an officer on reconnaissance has been captured

with a marked map showing the location and identity of his unit.

This weakness is not confined to our own Army. Every day's fighting sees important combat intelligence developed from talkative prisoners and captured documents.

Perhaps the reason is largely psychological. Every soldier subconsciously believes that he will never fall into enemy hands, either dead or alive. If he didn't believe that it might be hard to lead him into action. Accordingly he thinks it is useless to leave behind his letters, maps, etc., especially as it may be hard to recover them later. He listens to the "name, rank, and number" instruction half-heartedly, because he doesn't think *he* will be captured. When he is, the unexpected shock overpowers him and he forgets not to talk.

To bring out how violations of the simple rules of security can have serious military consequences, let's go back to a famous incident in our history.

In September, 1862, Lee with his Confederate Army was in Maryland, generally around Frederick. McClellan, with his far superior (numerically) Union Army was advancing cautiously toward him from Washington. In order to capture a Union garrison at Harpers Ferry, Lee planned a complex operation which involved dividing his army into five widely separated columns. He believed that McClellan's extreme caution and the mobility of his own forces would enable him to reduce Harpers Ferry and reassemble before McClellan would come to grips. Accordingly, he sent written orders to the commanders of the five columns and proceeded with the operation.



Soon after the Confederates marched out of Frederick, the Union Army moved in. An Indiana regiment happened to bivouac in the area recently va-

cated by D. H. Hill's Confederate Division, and one of the soldiers found three cigars wrapped in a piece of paper lying on the ground. The paper looked important so it was passed rapidly up through channels to McClellan himself. It was a copy of Lee's operation order. It was undoubtedly authentic because it bore a signature which was recognized as that of Lee's Adjutant General. He had been a personal friend of one of McClellan's staff officers before the war.

Armed with this information McClellan threw off his habitual caution, pushed ahead vigorously and closed with Lee at Sharpsburg before the latter could reassemble. In the ensuing battle only Lee's brilliant tactics and the fighting qualities of his troops averted complete disaster—as it was, he was compelled to withdraw to Virginia and the 1862 invasion of the North was frustrated.

The circumstances surrounding the loss of the order were the subject of much dispute and recrimination, but the facts seem to be substantially as follows: D. H. Hill's Division, though not organically a part of Jackson's Corps, had been temporarily attached to it. Lee's order ended this attachment and made Hill's Division one of the five separate columns, so a copy of the order was sent to Jackson and one to Hill. Jackson, apparently not knowing that Hill already had a copy, personally made a copy and sent it to him. This copy Hill received and carefully kept. The other copy being extra, it was thrust into some staff officer's pocket, forgotten, and lost. The loss was *never* reported, but Lee learned of it soon afterwards through a friendly civilian, who had heard that McClellan had found a copy of Lee's orders.

Several specific violations may be picked out of the above incident. First, Jackson made a copy of the order without authority and without reporting his action. Second, Hill's staff handled their vital paper carelessly and succeeded in losing it. Third, Hill failed to have a thorough inspection made of this bivouac area after his troops had left. Fourth, the officer losing the document failed to report the loss. And fifth, the officers of McClellan's staff were so indiscreet about their lucky break that the local civilians promptly learned about it.

History is full of such incidents.

Everyone agrees in principle on the desirability of properly safeguarding military information. Few, however, are willing to make the personal effort and accept the personal inconveniences entailed by it. Everyone thinks that the information *he* possesses doesn't amount to much, so he doesn't want to bother about it. What is needed, of course, is thorough and effective indoctrination. How is this to be achieved?

We have been making efforts along this line for some time. When the author was a battery commander he was required to have a mimeographed page on the subject read to the men on the 30th day of

each month. This may have been fairly useful the first few times, but after the fifth or sixth presentation it might as well have been a reading of the Twenty-Third Psalm. We not only need to teach people what to do—we must *convince* them that it is necessary to do it.

A progressive series of talks would have been much better than the procedure outlined above. War Department Training Circular 99, 4 December 42, contains a wealth of material on which to base such talks. Examples of actual violations which have had serious consequences should be brought out. All officers and any enlisted men who handle classified material should be made to read AR 380-5, with perhaps a written test afterwards, to fix the subject matter in their minds. Senior officers should set an example by scrupulously observing the regulations and by carefully avoiding loose talk.

Finally there is a training aid which is not approved by scientific educators but which has for years been used successfully in our Army—fear of

punishment. This crude implement has effected great changes in other phases of counterintelligence—camouflage, for example. We all remember how poor the camouflage used to be three years ago. Army and corps commanders began to “behead” regimental and battalion commanders whose units were particularly poor. Today we see much better conditions—partly due to training and experience, of course, but also partly due to this ruthless drive from above.

If necessary, similar methods can be employed in safeguarding military information. Offices can be inspected after hours to see if any classified material is lying about. Personnel can be detailed to listen for loose talk in restaurants, theaters, etc. Personnel captured on maneuvers carrying valuable papers can be reported. Personnel can be held responsible for knowledge of important rules of procedure. And violators can, when gentler methods fail, be punished.

Considerable effort will probably be needed to solve this problem, but the goal certainly justifies it.

Preparing for “Allied Military Government” in Britain

CIVIL Affairs Administrators are now being trained in large numbers at a former girls’ school near London. Their title does not indicate that they are in fact military officers, under military control, who will form part of the Allied Military Government of territory captured from the enemy. The title is correct, however, in the sense that the Administrators’ main concern will be with civil affairs in the conquered territories.

Officially, the girls’ school is known as the Civil Affairs Staff Training Center and is under the Directorate of Civil Affairs at the War Office. The Commandant is a former business man with wide experience of Continental Europe. Students at the Center are chosen by a Selection Board from candidates between the ages of 35 and 55; their average age is 45-46. The varied work of AMG is reflected in the students’ varied origins. They include doctors, senior police officers, officers of the Civil Defense and National Fire Services, local government officials, colonial administrators, and men prominent in commercial and industrial life. There are also senior regular officers from the three fighting services, men who are just too old for the speed of modern warfare but not too old for other work; officers from the Dominions forces and from the United States Army and Navy; and representatives of the European Allies. Captain is the lowest rank for students admitted

to the course. Those who pass are likely to be promoted immediately to field rank.

Instruction is intensive. There are four main categories of courses, to be taken by all students. They are:

1. Military instruction.
2. Organization and administration of civil affairs.
3. Instruction of a general nature under various functional headings.
4. The economic, administrative, and cultural background of selected countries of Europe.

Part of the instruction consists of an “exercise” in which groups of five students have to deal with a particular situation after an imaginary landing in a particular territory. On completion of the “exercise,” mistakes are discussed at a special session. Throughout the courses, emphasis is laid on the point that the Civil Affairs Administrators’ duty is not so much to do things themselves as to get the local authorities to do them.

Students and instructors mess together at the Training Center and most of them live there. Those for whom there is not living accommodation are billeted in the neighborhood. The Women’s Auxiliary Territorial Service have provided a staff to look after the domestic and clerical work.

Sniping -- A Japanese Art

[From an article by Charles Edmundson in *Fortune* December 1943.]

The author, an associate editor of FORTUNE, recently returned from an eight-month assignment in the Southwest Pacific where he witnessed the practice of sniping from the uncomfortable vantage point of occasional target.—THE EDITOR.

LYING IN wait to ambush an enemy from a tree or wayside crag is a trick older than history, but the Japanese have brought it to a fine Oriental flowering. They have given it a technical and psychological perfection that makes it in effect a new tactic. It is a form of "offense (or counter-attack) in depth," the reverse of the defense in depth developed by the Russians and adopted by the Germans. So far the Allied armies in the Pacific have found but one answer to it and that, paradoxically, is no answer at all, for it consists chiefly in simply ignoring the Japanese snipers.

When the 32d Division first struck in New Guinea and the Marines first landed on Guadalcanal the troops were sometimes so disconcerted by snipers scattered through their own area that they couldn't concentrate on the main body of the enemy. They were likely to go "trigger happy" and pepper the treetops aimlessly with thousands of rounds of ammunition. This fire struck few snipers but strained the soldiers' own nerves almost as much as a full-scale battle. Moreover, it wasted precious ammunition, brought over miles of muddy, tangled trails on the backs of soldiers or native carriers.

Nowadays in the better-disciplined units, officers order the men not to reply to sniper fire unless they can actually see where the sniper is, and even then not without express permission. For the imagination works overtime in the jungle. Any flutter among the branches may be a sniper; it has been a tough season for the little tree kangaroos in New Guinea.

If every bullet—or every second or fourth bullet—fired by a Jap sniper killed or wounded an Allied soldier, a more direct counter to snipers would have been developed. But jungle veterans who have paid special attention guess that snipers hit their mark only once in twenty to thirty shots. The Japanese are only fair marksmen at best, and a sniper, aiming downward, has a much more difficult shot than a ground soldier. A six-foot soldier standing erect presents to a marksman on the same level about eight square feet of target. But to a sniper in the treetop overhead the same man will make a target of only one or two square feet, depending, of course, on the angle of deflection.

And there are physical difficulties that prevent accurate aiming; the sniper, though obviously brave, is by nature and probably by training averse to

showing his face or hands or gun barrel through the leaves of the tree. Since the primary object is to cause distraction and impair morale, it is not of supreme importance that he hit the mark every time. Concentrating on stretcher bearers, ammunition carriers, and troops going to and from the front, he can carry out his harassing mission whether he hits often or not.

PSYCHOLOGY OF THE IVILI TOWER

Some seasoned campaigners suspect the Jap sniper does not try to make every shot count, lest he drive his intended victims to stronger measures for his extermination. This may be a strained view, but it is one way of explaining why snipers show so much more deadly effectiveness at crucial moments, as when a company moves in against a machine-gun line or a platoon breaks out to charge a bunker. In such situations, when a few shots in the back may take some of the punch out of a charge, the snipers' marksmanship improves conspicuously.

The snipers, seeing that attention is centered on the projected attack, are apparently emboldened to poke their heads and guns farther out of their treetop arbors and take more careful aim. They consistently fire more often when the racket of other rifles or machine guns makes it harder to locate their own fire.

The Marines who made an auxiliary attack on Munda from the north while the Army made the main attack from the south found out how carefully enemy snipers save themselves for the strategic moment. On the way from Enogai to Bairoko the Marines experienced only guarded fire from snipers, and while they took up the posts from which they were to make the main charge against Bairoko Harbor they had little trouble. But when they jumped to their feet—yelling like Indians—to make the assault, they were caught from the rear by the fire of many more snipers than anyone had suspected were around, and the aim was unexpectedly accurate. When the charge was over the snipers again subsided, declining to shoot even at soldiers who offered themselves as decoys.

Contrary to popular notion, few snipers have rifles equipped with telescopic sights, but they all use smokeless powder and carry a "flashhider," which also serves to some extent as a muffler. The rifle is only .25 caliber; its smallness lets the sniper carry the maximum of ammunition.

HE LIVES TO SNIPE AGAIN

An assignment to enter the enemy lines four or five miles up the trail from the front, and take a post up a tree and begin shooting, sounds like a suicide

mission. Actually, with the Japanese technique, it is far from that. To be sure, if the battle happens to be in a coconut grove the highest tree will usually rise not more than fifty or sixty feet, and that is none too safe, particularly as the top can be easily sliced off with automatic fire. But in the jungle, where most of the Pacific island fighting takes place, the sniper may be nesting a hundred or more feet above the ground in a banyan tree or in the wing-rooted tree that the New Guinea natives call the "ilimo" and the New Georgia natives call the "ivili." Even without artificial concealment it would be almost impossible to sight the sniper through the thick foliage without field glasses or to aim at him accurately without telescopic sights.

But the Japanese has improved upon nature. He wears, of course, a mottled-green jungle uniform and paints his face and hands green. High in the tree he builds his platform the size of a bridge table or larger, shrouded by an arbor of green branches gathered around the platform by means of ropes. The camouflage is so perfect that once a nest is sighted it is easily lost again, like the now-you-see-it-now-you-don't figures in a picture puzzle. It is not uncommon for a soldier to lose a sniper's nest in the few seconds between putting down his field glasses and taking up his rifle.

When the nest is finally sprayed with rifle fire, the sniper may still be safe, for he usually has either a vine ladder or a catwalk leading to a hideaway next to the tree trunk on the side away from the trail. Another ruse is for the sniper to set up a dummy a few yards away in another part of the tree, and jiggle it with a cord to divert attention to it when the search becomes uncomfortably hot.

The value of a varied technique is not overlooked; now and then, when everybody is conditioned to search in the treetop, the sniper does his shooting on the ground. At night he may take an occasional shot down into the moonlit foxholes. Or, shinnying down the tree, he may by a few sly strokes with his machete start the tired, nerve-strained Allied troops fighting among themselves.

Sometimes a group of snipers will gang together to terrorize a section of the front at night. They signal each other by tapping on pieces of bamboo, making a noise like a dry-throated tree frog. They can follow each other around by marking their backs

with the fox fire, or natural phosphorus, in which the swampy jungle soil abounds. Sometimes they discard their uniforms, and wearing only a loincloth, cover their bodies with grease so they can wriggle free if a Yank succeeds in catching hold of them.

In the face of such terror tactics, discipline can become a problem. If the Allied troops get out of their foxholes en masse and fight back, they are playing into the enemy's hand. For in the darkness they will kill and wound far more of their own men than they will Japs. In many of the better-disciplined regiments the soldiers are required to stay in their foxholes all night. Then identification of infiltrators is easy: the sentries have orders simply to shoot anyone who shows himself above the ground.

"NEVER MIND THE SO-AND-SO'S"

It is never pleasant to be shot at, even by a poor marksman, and it is a tribute to the courage and discipline of the soldiers that they have learned to treat sniper fire with relative disregard. But to ignore the sniper is not sufficient. In spite of his twenty to thirty shots to one hit, he does kill or wound many men and does strain morale. The best countertactic is the special patrols that some officers have set up. These patrols, relieved of front-line fighting to concentrate on snipers, are picked for their woodcraft and marksmanship and then given special training. Their effectiveness would be vastly improved if they were equipped with high-powered field glasses and rifles with telescopic sights—items that are said to be on the way. With a little thought, ordnance could devise other special weapons. At Buna the 128th Regiment got good results by shooting 60-mm mortar shells up into sniper-infested trees; the results would have been better still if the shells had been manufactured on canister lines for that particular purpose.

So far the Allies have done no systematic tree sniping of their own, although they have used treetop observation posts. The chances are that they will never send riflemen up trees to any large extent, for they are now on the offensive, and tree sniping is better adapted to the defensive, when a retreating force can leave marksmen in well-prepared nests. The Allies' problem is to make tree sniping so costly for the Japanese it will actually be the suicide mission it now only seems to be. Then it will cease to be a problem.

Never depend completely on the strength of the terrain, and consequently never be enticed into passive defense by a strong terrain. For if the terrain is really so strong that the aggressor cannot possibly expel us, he will turn it, which is always possible, and thus render the strongest terrain useless.

—Carl von Clausewitz

Service Commands and the Army Air Forces

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THE TELEPHONE jangles noisily on the desk of the Air Liaison Officer at Service Command Headquarters.

The Provost Marshal is calling: "Well, chum, here's another headache for you. The Mayor of Podunk is yelling that the boys from Icarus Air Base are flying too low over his fair city again. I'm sending the letter over."

The Air Liaison Officer sighs and waits for the letter. It develops that a certain P-38 had been zooming mysteriously over a certain chimney in Podunk each evening—at just the hour when a certain young lady gets home from work.

A little "liaisoning" obviously is indicated. The air base commander is reached by telephone and tactfully requested to try to keep "the boys" a little higher in the air.

Just another job for the Air Liaison Officer, and typical of the kind of thing he handles as a matter of routine. He's a sort of air troubleshooter for the Service Command.

In this connection it may be appropriate to quote from the ASF Organization Manual on the relationship of Service Commands with the Army Air Forces. It says: "The mission of Service Commands in respect to Army Air Forces units located within their physical boundaries is to perform a limited number of specific services for such units. The Service Commander will, however, render all possible service requested by units of the Army Air Forces, provided that adequate Service Command facilities and personnel are available."

That last sentence is, in effect, the motto of the Service Command with respect to the Air Forces, and frequently results in the Service Command going far beyond the limitations of the "specific services" set out in the manual. It helps explain the interest of the Service Command in the incident of the low-flying P-38, particularly in view of the basic concern of the Service Command in relationships between the civil population and the military.

Does the Air Liaison Officer have anything else to do? He does—lots more. As an Air Corps officer and member of the staff of the Commanding General of the Service Command, he is technical adviser to the Commander and the rest of the staff on air matters. He keeps a station list of AAF installations within the geographical limits of the Service Command—this alone was quite a job until recently, when the Air Corps was expanding practically by geometric progression.

In some Service Commands the Air Liaison Officer also handles applications of officers of the Ground

and Service Forces for flying training with a view of transferring to the Air Corps; he helps in the procurement program for aviation cadets, keeps in touch with the Civil Air Patrol, and reviews reports of survey on technical equipment at AAF posts.

Up to this point one might get the idea that all matters affecting air units within the Service Command area are handled by the Air Liaison Officer. Far from it. There is not a major division of the Service Command Headquarters that doesn't have certain direct relationships with the AAF. That's where the "specific services" mentioned in the ASF Manual come into the picture. These services, about a dozen and a half of them, are set out in AR 170-10—they range all the way from action in domestic emergencies to operation of laundries. The general idea, of course, is to relieve air personnel of as many non-technical overhead functions as possible. At the same time, however, the regulation prescribes that the air station commander is "responsible to and under the supervision of the Service Commander for the adequate performance of functions which are the responsibility of the Service Commander." Moreover, when a Service Command unit is located at an air station, as frequently occurs, it is up to the air station commander to provide overhead and administrative services to the Service Command unit. In these cases the Service Commander provides the personnel to perform the functions for which he is responsible.

Now what are some of these "specific services" rendered by the Service Command and how are they handled? The present Service Command Headquarters organization, as prescribed by Army Service Forces last December, consists of thirty-five major subdivisions in four general groups. Virtually all of these major offices have certain relationships with air installations, some a great deal more than others.

One of the staff groups consists of seven offices, all integral parts of the office of the Service Commander. They include the Chief of Staff, Inspector General, Public Relations Officer, Air Liaison Officer, and several others. Air Liaison is the only one of these with a considerable number of relationships with air stations. The next staff group consists of the offices of the Director of Personnel, Director of Military Training, Security and Intelligence Division, Adjutant General, Fiscal Director, Judge Advocate, and Director of Supply, all directly responsible to the Commander. All of these officers have certain relationships with the air forces. Under three of the directors—Personnel, Military Training, and Supply—are grouped various subordinate divisions, forming the third staff group. For the purpose of this article

it is necessary to mention only the offices of this group which have important relationships with the AAF. They are the Military Personnel, Civilian Personnel, and Special Services Divisions, under the Director of Personnel; Military Training Division, under the Director of Military Training; and the Salvage and Redistribution Division, under the Director of Supply. The fourth staff group comprises representatives of the seven technical services—Engineer, Ordnance Officer, Signal Officer, Surgeon, Quartermaster, Chemical Warfare Officer, and Transportation Officer. Of these, all but the last two have an appreciable number of air relationships.

The role of the Engineer is one of the most important in the Service Command in relation to the air as well as the ground forces, for he provides many of the creature comforts which we all enjoy. AR 170-10 puts the job rather prosaically, lumping all the Engineer activities under "repairs and utilities." What this means is that the Post or Base Engineer, under supervision of the Service Command Engineer, procures fuel, water, electricity, and illuminating gas, and maintains and operates utilities plants and systems; he maintains and repairs buildings, furniture, grounds, roads, and target ranges; handles insect, rodent, and vermin control, and, as fire marshal, operates fire protection equipment. Funds for repairs and utilities at individual stations are allotted to Service Commanders under direction of the Commanding General, ASF, based on quarterly requests drawn up by Post and Base Engineers and forwarded to the Chief of Engineers through Service Commanders. At air bases, the Engineer is the one officer assigned to his job by the Service Command. On reporting, however, he becomes a member of the staff of the base commander. The Base Engineer executes most of his responsibilities through civilian employees; these also are Service Command personnel and are paid out of funds allotted to the Service Commands and suballotted to the air installations.

The Service Command Engineer wears another hat, that of Division Engineer under the Chief of Engineers, with responsibility for military construction and acquisition and disposal of real estate. Engineer divisions are field agencies of the Corps of Engineers and have geographical boundaries co-extensive with those of the Service Command. The division offices are in constant communication with the air forces on construction and real estate matters. As Division Engineer the Service Command Engineer is independent of the Service Commander, but in matters of repairs and utilities he is of course a member of the Service Commander's staff.

The Ordnance Officer of the Service Command is responsible for the supply of administrative and tactical vehicles to air bases, and also for ordnance maintenance, including the higher echelons of automotive maintenance. In some Service Commands, the Ordnance Officer has set up an automotive advisory

service, consisting of teams of experts which go from one post to another, checking on motor pool operation and on the adequacy of first, second, and third echelon maintenance. Air force stations may be included in the itinerary of these teams, subject to AAF approval. As for control of vehicles, air commanders can transfer them from one point to another, but only with Service Command approval. Normally, vehicles are left at the base when a unit moves.

Installation and major maintenance of fixed communication systems are the responsibility of the Signal Officer. Equipment is provided and installed under his direction, but operation and normal maintenance are up to the using air personnel. They call on the Service Command for higher echelons of maintenance. Types of communications include radio, fire alarm, telephone, telegraph, TWX, and teletype printer systems. Some of these services, of course, are obtained by the Service Command through contract with commercial systems.

The Service Command Surgeon handles sanitation matters through liaison with base surgeons and with the Service Command Engineer in connection with water and sewer systems. When requested, the Service Command medical laboratory provides water analyses and similar services to surgeons at air stations. In fact, most of the relationship between the Service Command Surgeon and air stations is on a cooperative basis, as the Service Command has no command responsibilities on medical matters except those pertaining to certain sanitation activities and the keeping of certain statistics. In many cases, however, considerable assistance is given by the Service Command in the form of consultant service, hospitalization of air force personnel in Service Command hospitals, and so on. In one Service Command a team of three specialists—a surgeon, a neuropsychiatrist, and an internist—visits air bases, with the blessing of the AAF, and reports on the quality of medical care and the adequacy of hospital staffs.

The Quartermaster has charge of laundry operations at air bases and he also examines for defects all so-called Quartermaster Corps contracts and Service Command contracts. Examples of Quartermaster Corps contracts are those for bread, milk, ice, and non-perishable items procured with funds from a regional Quartermaster depot. Service Command contracts are those under which payment is made from funds allotted by the Service Command, such as contracts for laundry and dry-cleaning, shoe repair, burial services, and packing and shipping of household goods. On subsistence and clothing the Service Command Quartermaster ordinarily does not come into the picture, these being provided to air stations directly from Quartermaster depots.

So much for the relationships of the Service Command technical services with air installations. In the execution of their staff and operating responsibilities, the technical service representatives have frequent

liaison with other staff divisions of the Service Command.

The Engineer, for example, works with the Civilian Personnel Division in connection with the civilians he employs on repairs and utilities duties at air bases. As mentioned above, these employees are under control of the base commander, but they are paid from Service Command funds and are considered Service Command operating personnel. Other civilians in similar category are service club personnel, hostesses, and librarians, who are assigned by the Special Services Division and paid from appropriated recreation funds. As for military personnel, Base Engineers themselves, together with any other commissioned or enlisted personnel assigned to them, are carried on the books of the Military Personnel Division.

Among the most important functions performed at air bases under supervision of the Service Command Director of Personnel are those of the Special Services Division. It has three main activities: Army Exchange Service, Army Motion Picture Service, and athletics and recreation. The Exchange Branch has technical supervision over post exchanges at air installations. It arranges for establishment of exchanges and auditing of PX books. Movies at War Department theaters, USO shows, and other entertainment are scheduled by the Special Services Division and appropriated recreation funds are al-

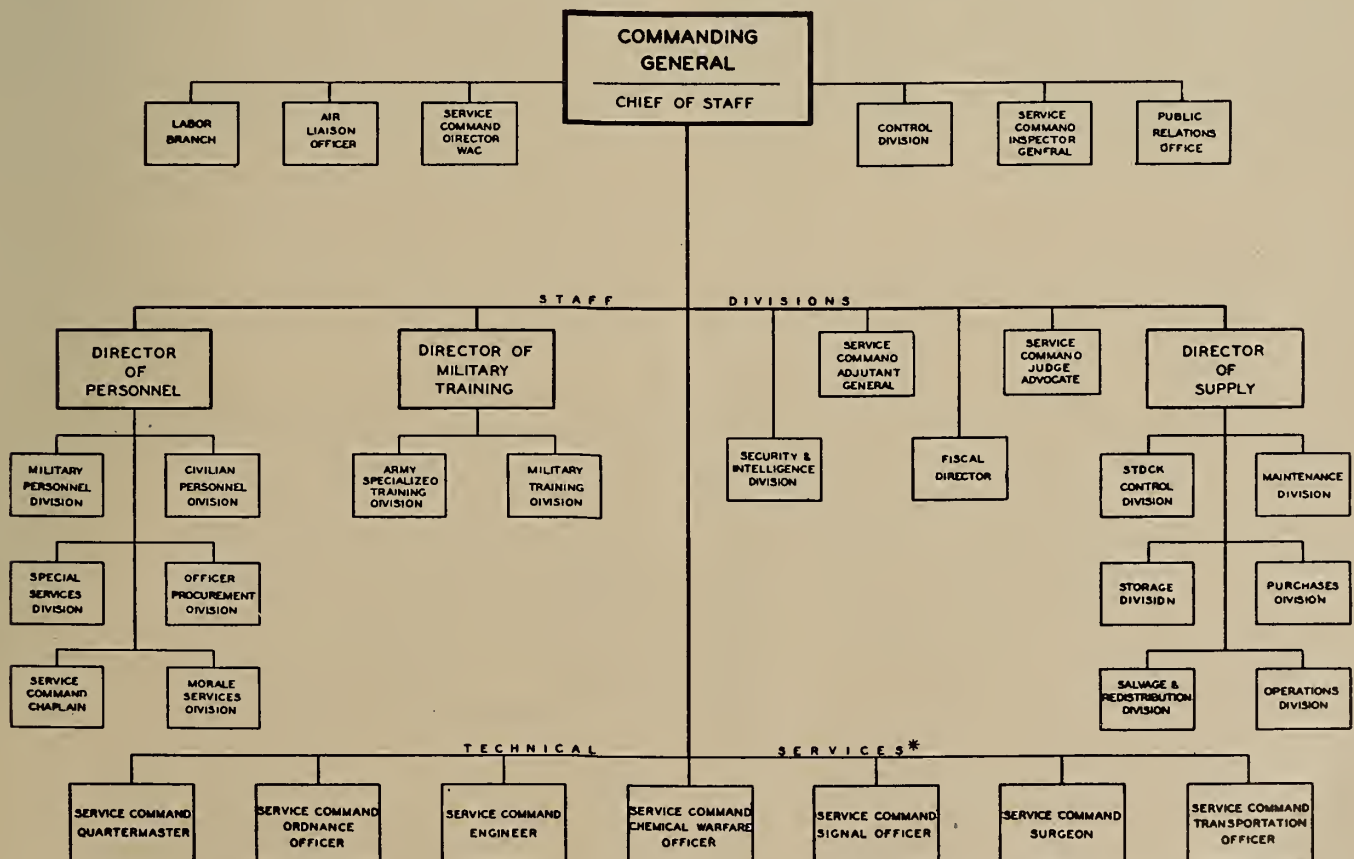
located by it, through the Fiscal Director. As mentioned above, service club civilian employees are assigned to air bases by this division, in liaison with the Civilian Personnel Division. Of course, special service activities at any AAF station are directly controlled by the station commander through his Special Service Officer; the Service Command co-operates with all the assistance it can give.

The Fiscal Director has the job of suballotting all funds to air stations for those activities for which the Service Command is responsible. If more money is needed for the service club or the Commanding Officer wants an extra telephone connection, it is from the office of the Fiscal Director that the money will come. Also, he reviews reports of survey from air bases and in this job, as was pointed out, gets expert assistance from the Air Liaison Officer.

The principal relationship of the Service Command Adjutant General with air bases is in the reproduction and distribution of various War Department communications and publications. The Judge Advocate supervises legal aid activities for soldiers and handles general court-martial matters at those air installations where court-martial jurisdiction has been delegated by the AAF to the Service Command.

The Salvage and Redistribution Division, under the Director of Supply, handles salvage at all army installations in the Service Command area, except salvage of AAF-procured equipment. Even after sal-

ORGANIZATION OF SERVICE COMMAND HEADQUARTERS



* CHIEFS OF TECHNICAL SERVICES ACT AS STAFF OFFICERS AND ADVISORS TO THE COMMANDING GENERAL ON THEIR TECHNICAL SERVICE FUNCTIONS

vage of this exempted equipment has been completed, however, the Service Command agency may take over what is left for disposition.

Training at air stations, like personnel, is an AAF responsibility; so about the only time the Military Training Division of the Service Command comes into the picture is when the air force station wants training aids for ground training, such as small-arms firing ranges, special training films, and so on. This isn't even included in AR 170-10, but is one of those logical developments under the "all possible service" clause of the ASF Organization Manual.

The Security and Intelligence Division of the Service Command has several interesting contacts with the AAF. The regulation gives the Service Command control of Provost Marshal investigative functions, which have to do with loyalty investigations of civilian personnel employed or considered for employment by the Army. These are handled by the Security and Intelligence Division, along with investigations of military personnel and civilian employees suspected of subversive activities. At air stations this type of work is handled initially by the Intelligence Officer of the station, with the Service Command agency sending out investigators on request.

Perhaps the principal relationship of this division with AAF installations is in control of air personnel when they are away from their posts. Circular No. 77, War Department, dated 17 March 1943, charges Service Commanders with responsibility for the conduct of all military personnel within the geographical limits of their Service Commands other than at posts, camps, and stations and in certain maneuver areas. It also authorizes them to call on local commanders for temporary detail of suitable personnel

for military police duty. They may prescribe "off limits" or curfew for military personnel in civil communities, after consultation with commanders concerned. This placing of authority in the Service Commanders is an effort to do away with conflicts of authority and misunderstandings. Some situations are particularly delicate because they come up right in the middle of the civilian community and any discord is bound to reflect on the Army as a whole. The responsibility of Service Commanders for conduct of all military personnel necessarily extends to railway trains operating within the Service Command area; military police on trains are Service Command personnel. This job, as everyone knows, is sometimes a trying one. Some Service Commands have had small cards printed for distribution by MP's on trains, reminding armed service personnel of their obligations with respect to conduct and personal appearance.

This, then, is the picture of some of the normal and official relationships between Service Commands and installations of the Army Air Forces. In point of fact, there is a constant stream of communications between Service Commands and air stations on matters not remotely connected with the "specific services" set out in the regulation. These matters the Service Commands are under clear-cut directive to handle to the best of their ability.

To help keep the picture clear, the Commanding General, Army Air Forces, recently named an Air Liaison Officer who is stationed in the office of the ASF Deputy Chief of Staff for Service Commands at Washington. His job is to advise personnel of the ASF and AAF on matters of mutual interest, to expedite coordination of policy, and to assist Air Liaison Officers at Service Command Headquarters in matters involving AAF installations.

Learn to judge character, to distinguish between the strong and the weak—the man who responds to reason—the one to force—the one to affection. Handle them accordingly. Realize that Americans have their own traits and characteristics—that they do more and go farther if they know the reason for or objective of their task than if led blindly. Learn to utilize pride and healthy rivalry to promote efficiency. Insure that a mutual understanding exists between you and your men—tell them what you want and why—take them into your confidence, and they will die for you.

—Lieutenant General Hugh A. Drum, U.S.A.

Administration in Combat

COLONEL MICHAEL R. LUBBOCK, *British Army*

Instructor, Command and General Staff School

(G-4, Tenth British Corps, in the North African Campaign until 15 July 1943.)

WHEN American and British officers exchange views and discuss the administrative systems of their respective armies, it generally seems that no useful comparisons can be made nor each learn something from the other. Not only are names and terms dissimilar, but the organization of echelons, of the corresponding units, and of their respective responsibilities vary greatly. In active operations, however, many of these differences disappear. In no army is the manual doctrine carried out literally in battle, for inevitably varying circumstances, terrain, weather, and available resources dictate amendments and improvisations on the spot. The pressure of operations and the necessity for quick decisions lead to a wholesale cutting of red tape, and to new methods based on common sense. Luckily, no one nation has a monopoly of this essential quality and therefore in battle the different practices tend to become more and more alike.

It may be useful to describe in some detail one or two of the more pressing administrative problems in battle in order to show the small points which matter so much in practice but which are sometimes forgotten in talking theoretically. Conversely, there are occasions when a somewhat complicated doctrine can be reduced to one or two simple fundamentals which are all that really matter in operations.

BATTLEFIELD RECOVERY

One of the most difficult questions facing a G-4 in battle is that of vehicle recovery. This obviously applies particularly to an armored division with its greater number and heavier types of vehicle; but though an infantry division must also be concerned with it, the salient points can be better emphasized by describing the operations of an armored combat command.

The first question is where to locate the recovery section of the ordnance battalion. If it lies too far back, the heavy wreckers and transporters will not be able to answer urgent calls for help. If, on the other hand, it is placed too far forward, there is more danger of these valuable vehicles coming under shell fire or being bombed. A practical compromise is to site it some two miles behind the armored battalions. Next, it must be ensured that calls for help are transmitted quickly and accurately to the recovery section, and that a centralized control is kept of its missions and of the movements of the recovery vehicles. Without such control, heavy wreckers bringing back damaged tanks may go astray or break down and fail to get the necessary assistance, while unless someone is watching the overall posi-

tion, additional help will not be demanded soon enough from army when all the divisional resources are already fully employed.

COMMUNICATIONS AND CONTROL

To emphasize the particular problem of communications and orders, it may be helpful to describe the experiences of a British armored brigade [the author was DAQMG which corresponds to our S-4.—Ed.] which had considerable operational experience in Africa. In its early battles, when a tank was damaged, the tank company commander used to call his commanding officer on the radio and tell him the type of tank, its identification number, the coordinates of its position, and the nature of the damage—details which the recovery organization must know. The commanding officer was fully engaged in running the battle and had little time or patience to pass on such a detailed message. He therefore repeated a shortened version to the officer with him who was working the rear link radio to CC Headquarters. Here in turn it reached the CG of the CC who was also in no mood to deal with administrative details. Therefore, by the time the information reached the S-4 of the CC the message probably stated only that a tank had been damaged and that it was to be recovered at once! On this totally inadequate information the unhappy S-4 had to send out recovery vehicles to scour the countryside, which resulted not only in a great waste of time and energy but also in wreckers being frequently captured or shot up.

The solution to this problem was eventually found by altering the channels of communication. Close behind the tanks in battle lay the A trains, the commander of which was solely concerned with administration and not particularly harassed by the immediate events of the battle. When the tank company commander reported the details of a tank casualty over the command net, the battalion commanding officer paid no attention, for the A train commander was also listening on this net and acknowledged the message. He then flicked to the administrative net controlled by the S-4 and repeated the company commander's message in full. The S-4 acknowledged it and then asked the recovery section, who were listening on the same net, whether they had heard it. The latter confirmed that they had and went straight out to deal with the casualty. In this way, the matter was handled only by the three officers who were most concerned with it and who therefore gave it their full attention; it was only once repeated and had but one chance to get mutilated, while, in having

the report from the tank battalion sent initially to the S-4, he was able to keep a complete record of recovery missions. This, combined with subsequent reports from the recovery section when missions were completed, enabled him to keep a constant check on the movement of all recovery vehicles, to know the number and location of all tank casualties and, if necessary, to get further help from army, either by having additional wreckers placed under command or by getting army to come farther forward to evacuate casualties.

TRAFFIC CONTROL

Another important subject where practice produces more problems than appear in theory is traffic control. The title suggests to many people only the sort of work done by a city policeman at a busy intersection. It is true that the subject includes the control of vehicle movements on important roads, at crossings, bottlenecks, and bridges, and in general the maintenance of an even, uninterrupted flow. Even here, however, there are points which are only learned by experience. For instance, one of the factors contributing most to traffic congestion is double banking which is generally caused by the individual truck pulling out from its line to overtake its own convoy. Most drivers after only a little training obey the rule to keep in line until they see someone in front pulling out. When this happens the man behind always seems to think that it is a general signal for those following to follow suit, the whole column swings out and increases speed, and in a few minutes there is a solid block of vehicles double banked over a considerable distance and jammed up against the traffic moving in the opposite direction. The same sort of block may also be caused by convoys or individual vehicles stopping on the edge of the road for some minor repair or to fill up with gas. In this case, unless those behind are to wait indefinitely, it is essential to pull out, but the same trouble follows.

STAGING AREAS

A simple expedient for avoiding this is to establish at convenient distances—say every twenty miles or approximately where halts would normally occur on a long march—staging areas cleared of mines and provided with a small police section and information post. Vehicles are then forbidden to stop anywhere but in these areas, while convoys will find them convenient for their periodic halts. Thus the individual driver who has got separated from his convoy need not worry about overtaking them while on the march, but can rest assured that when he reaches the next staging area he will find either the convoy itself or at least information as to where it has gone and how far it is ahead.

An additional advantage of these staging areas is that they serve as control points when traffic is being moved on block timings, for all convoys can be

checked in and out and reports passed back to the central traffic control by radio or line.

One essential point to note is that if traffic control is to be effective it must be administered by the highest formation headquarters who will be making use of the road. It is inadvisable to hand over control of a stretch to corps headquarters, for instance, if army troops or air force units are going to make use of it, for the reason that rules made by corps will probably not get distributed to such higher formations and, even if they are, may not be strictly followed. It is only by issuing such orders from the highest command that uniformity of practice can be ensured, and it needs only one or two drivers disobeying a traffic rule to cause a large-scale and serious hold-up.

ADMINISTRATION

But traffic control in its widest and proper sense includes more than such purely police duties. It should embrace many other aspects of administration such as vehicle recovery, supply points, emergency medical treatment, and information posts. Supply points must be sited at stages where convoys will normally halt for the night and want to fill up. Recovery resources must be distributed as evenly as possible, but at the same time must be concentrated at danger points, e.g., bridges, defiles, and other bottlenecks where a single vehicle casualty may cause a block. It must even be decided which side of a bottleneck a heavy wrecker is to be stationed. For instance, if it is placed on the far side (looking in the direction of the flow of traffic), the vehicles in front of a casualty will have moved on and the wrecker should be able to back up and pull it forward out of the way. But, if this is not possible, all traffic will have to be stopped while the wrecker moves back through the defile, turns, and comes forward to the casualty—and this may not always be easy. If, on the other hand, the wrecker is kept on the near side, the vehicles following the casualty may cause a solid jam which will prevent the wrecker ever reaching it.

Finally, it must be remembered that one of the most important aids to an efficient move is the information post. Inevitably, some vehicles will get lost or cut off from their main parties, convoys may be redirected while en route, or convoy commanders may find after they have started that they have not been given enough information as to supplies, medical installations, and the like. There must, therefore, be at all key points an officer or senior NCO who knows all the details of the move, including move tables, traffic timings, destinations, and locations of administrative units, and who also has some means of communicating with the controlling headquarters and being kept informed of all changes. Such information posts save a great deal of time in tracing units in staging or assembly areas, in restoring lost vehicles to their own convoys, and generally in sort-

ing out the inevitable muddles that arise during long and large-scale moves. Any officer who stops for a moment at the side of the road during such a move will, within a few minutes, be submerged by every sort of question from individual drivers and convoy commanders, and it is better to provide official sources of information than to leave the answers to well-meaning but uninformed individuals.

SALVAGE

Salvage is a question of obvious importance which must concern a G-4 both during a battle and in the lulls between. A clear distinction should be drawn between the collection and evacuation of such things as light weapons, gasoline cans, clothing, etc., and the recovery of damaged guns, tanks, and other vehicles. The latter, as has been shown above, demands very detailed planning and control. Salvage, however, can be reduced to a few simple fundamentals which must then be continually emphasized.

Firstly, it is a matter chiefly of propaganda and education. It is necessary to convince every individual soldier of the importance of salvage, to explain to him how salvaged material can be repaired and used again in the war effort, and to persuade him that even his small contribution makes a real difference. Such explanations and exhortations must form a continuous process so that he acquires a habit of mind and will automatically be looking at all times for damaged material to take back with him.

Secondly, the system for evacuating salvaged items must, particularly in the combat area, be extremely simple and must make maximum use of normal supply routes. A complicated layout involving special salvage units, dumps, and axes of evacuation is almost bound to fail. It must be a standard rule for every individual, both officers and enlisted men, that no vehicle of any sort shall go from front to rear without taking back as much salvage as possible. This means that every driver must be constantly on the look-out for odd items lying about on an old battlefield or by the side of the road; and he must, of course, know where to take them. Now the average soldier, after being in battle for a while, gets tired and is reluctant to go out of his normal way for salvage. Salvage collecting points and dumps must therefore be placed close beside other supply points to which drivers of supply vehicles will normally go. For instance, when a supply vehicle goes forward to a combat unit, there will usually be some particular point within the unit area where it will report and unload its supplies. If all members of the unit have been instructed to bring salvage to a dump at this point, it is no particular effort for the supply driver to load it into his vehicle and take it back. If, however, the supply point is even two or three hundred yards away, it is remarkable how blind and forgetful drivers can become. Finally, the main salvage dumps in the rear areas must also be located at

points where supply vehicles collect and load. Thus, in the 8th Army in Africa, it was usual to site the salvage dump in the corps supply point area between the entrance and exit so that divisional vehicles coming back to collect supplies would drop off their salvage as they entered and the empty corps supply convoys pick it up as they left the area.

MAINTENANCE

Vehicle maintenance is similarly a matter of the utmost importance which needs constant supervision but which can be reduced to three basic rules. A complete description of the methods to be employed has been given in a recent number of the *MILITARY REVIEW* (November 1943); but these few fundamental points cannot be repeated too often.

Firstly, drivers must not be changed from one vehicle to another more than is operationally necessary. Almost any driver acquires a pride in his vehicle after a time and begins to care about its mechanical fitness and general appearance. This must be the basis of good maintenance, because in operations no control, however complete and close, can check him at all times. If drivers are frequently changed around they begin to lose interest in maintenance and fall back on the easy excuse that any troubles or defects in their vehicle are the fault of the previous owner.

Secondly, there must be a standard task system—that is to say, certain routine maintenance jobs must be assigned specifically for each day of the week, the end of the month, and half-yearly. Such a system is no doubt already in use with most units, but after a time, it is apt to be honored more in the breach than in the observance. The easiest way to ensure that it is kept up is to give each driver a list of the jobs for the various periods which he ticks off on completion. These cards can then be turned in to his NCO or officer and themselves checked during routine inspections.

Finally, it must be realized by *every* officer that he is directly responsible for maintenance within his command and that it is one of his most important duties. One finds at times that it is considered to be only the concern of technical and ordnance officers. This is obviously not so in that the latter could not have time to check every vehicle sufficiently often. Therefore, all officers from the commander down to the most junior squad leader must know the principles and essential details of maintenance, must inspect their vehicles regularly and often, and during inspections must be prepared to get right under the vehicle and thoroughly examine the more inaccessible parts, rather than merely lift the hood and glance casually at the surface.

A reader of this article may think that the points described are so simple and so basic that they are hardly worth including in such an important publication as the *REVIEW*. The writer believes, however,

that it is these very points which are so often forgotten until they are learned by bitter experience and that it is a good thing sometimes to descend from

the high levels of doctrine and theory to the commonplace and apparently insignificant details which in battle are so vital to a G-4.

Perfection in Precision Bombing

THE DAYLIGHT bombing of the Focke-Wulf factory at Marienburg, East Prussia, by American Fortresses and Liberators on 9 October 1943 was remarkable in two respects: first, it required a round trip of 1800 miles; and second, the work of the bomb aimers was brilliant in its precision. An officer present on the raid said that "this was the most perfect pattern of bombing I have ever seen." The factory, which covered an area of over a hundred acres and assembled about half of all Germany's FW 190's, was virtually obliterated.

The picture to the right shows the target just after the bombers had dropped their loads. The photograph below was taken during the run-up, while that beside it shows clearly the results of the raid. It can be said truly that "we have demonstrated to every German that no part of his Fatherland is safe."—(*The Illustrated London News* 23 October 1943.)



The target just after the bombing. The road extending to the right in this picture is shown extending to the bottom at the right of the two lower pictures.



The target as seen during the run-up.



The results as recorded by reconnaissance.

The Royal Air Force Staff College at War

WING COMMANDER A. G. DOUGLAS, DFC, *Royal Air Force*

Wing Commander Douglas is a graduate of the Royal Air Force Staff College and is at present a student at the Command and General Staff School.—THE EDITOR.

IN PEACETIME the Royal Air Force Staff College was situated at Andover which is near the great army training grounds on Salisbury Plain and less than a hundred miles west of London. The passing of the staff college course was essential for any successful air force officer and the length of the course was one year. When war broke out this staff college was closed down for the duration, as every available officer was needed to man the fighting units or to press on with the reorientation and expansion of the peacetime air force.

The Royal Air Force Staff College War Courses are of twelve week's duration. The objects of these courses are:

1. To assist officers to think clearly and to express opinions briefly.
2. To teach staff duties.
3. To provide a background of knowledge of the organization and operations of the Service which will enable officers to carry out staff duties appropriate to the rank of Wing Commander or Squadron Leader (i.e., Lieutenant Colonel or Major in the Army).

Each course now consists of sixty officers of whom the great majority are either Wing Commanders or Squadron Leaders and approximately fifty percent are aircrew who have recently completed their operational duty. The other fifty percent come from the non-operational commands, Air Ministry and the Ministry of Aircraft Production. The average course of sixty students will include four army officers and five or six officers in the air or ground forces of the Dominions and other United Nations as well as numerous Dominion nationals serving in the Royal Air Force itself. The result is that each course is truly representative of a most active and experienced cross section of the whole of the air force. The students include those who have most recently been fighting on all fronts and also experienced officers who have been closely connected with the organization, in all its branches, which has made that fighting possible. The interchange of ideas which becomes possible as a result of this is considered to be of very great value and is fully utilized in the syndicate system of instruction.

The Commandant of the school holds the rank of Air Vice Marshal, the Assistant Commandant is an Air Commodore, and there are ten "directing staff," who are Group Captains or Wing Commanders. The

directing staff are carefully selected and are continually changing so that between them they may always provide the most up-to-date information on the varied activities of the Royal Air Force. Also, of course, they must be capable of teaching the details and principles of staff duties. With the above personnel the instruction at the school is carried out mainly by three methods:

1. Exercises and discussions held under the syndicate system.
2. Lectures and addresses by visiting senior officers of the three services and civilians, and by the school staff.
3. Visits to nearby military and Royal Air Force centers.

The majority of the instruction is given in syndicates, each of which consists of six students and one directing staff. The members of each syndicate are carefully selected so that there is the maximum diversity of experience in each one. At the end of the fourth and eighth weeks, all syndicates are rearranged; thus each student has the maximum opportunity of benefiting from the different experience of fifteen other students as well as receiving personal instruction from three separate "directing staff" or "instructors." Discussions are held in syndicates under the supervision of the instructor in charge, who gets an excellent opportunity of forming an opinion of the characters and capabilities of his pupils. Students are encouraged to bring their problems to their syndicate instructor at all times and an informal atmosphere is maintained in the syndicate discussions which are held after each exercise. In this way slower working students and those with weaker general service backgrounds get the full benefit of individual attention from the directing staff. The whole syndicate also obtains the maximum benefit from those members who have had practical experience of the subject covered by the exercise under discussion. This tutorial system has been found to be of the greatest value both in enabling a fair assessment to be made of a pupil's capabilities and also in bringing out any latent capacity for command and staff duties.

The exercises carried out are categorized as "short exercises" and "long exercises" for convenience. Short exercises are given once or twice each week and are mainly concerned with staff duties and with the writing of letters and signals. One of their chief functions is to practice the student in working against time, and on occasions a short exercise is interposed in the middle of a long exercise to increase the pressure of work and force the student to con-

concentrate on two subjects at the same time. Short exercises normally have to be completed by the student within twenty-four hours. Typical subjects covered are message writing, warning orders and operation orders, intelligence reports, extracting a summary from a lengthy file, and writing short and clear draft letters based on lengthy and involved sources of information. The solutions to these exercises are usually criticized briefly by the instructor and then disposed of by means of syndicate discussion.

There are about fourteen long exercises on a normal course, and on an average each exercise is in the student's hands for four days. Some long exercises are divided into as many as four separate parts, each of which is issued on completion of its predecessor. The directing staff take the solutions from their own syndicates and criticize them by means of brief notes in the margins in red ink and a short general commentary of about two hundred words on a separate sheet of paper. Every effort is made to produce only helpful and constructive criticism, and after correction the exercise is returned to the student with the comments and a suggested solution. The whole is then followed by a syndicate discussion in which the student is given every encouragement to clear up any points he does not understand, either in the criticisms and remarks which have been written on his paper or in the suggested solution given by the directing staff. Typical subjects for long exercises are appreciations on various situations, each involving a different use of the air arm. The intention is to develop the student's capacity for orderly thought and at the same time to illustrate how planning is carried out and to familiarize him with various phases of air force activity. In some cases the appreciation is based on an actual position which has occurred and in some cases a fictitious situation is used. Long exercises also cover air force movements by land, air, and sea, the preparation of the necessary plans and orders for the transportation of a parachute brigade to its point of attack, war games, and other subjects illustrating operational and administrative problems. Students also write a 3,000-word essay on a topic which will entail the reading of books and papers on air strategy or allied subjects and will give scope for the clear expression of ideas. At the middle and end of the course, students, by syndicates, are required to write suggestions for improving the syllabus and conduct of the course.

The program of the course starts with the first four weeks devoted to routine staff duties and the general organization of the Royal Air Force, including lectures on the history of the RAF and the writing and speaking of the English language. It is in this phase that the majority of lectures by officers on the staff are given. The remainder of the course is roughly divided into sections dealing first with Supply and Maintenance and then in turn with In-

telligence, Training, Fighter and AAA, Naval and Coastal Command items, Bomber Command and the Ministry of Economic Warfare, Air-Sea Rescue and Army-Air problems. Finally the series is consolidated by subjects emphasizing the complementary nature of all components of the war effort such as Combined Operations, Joint Planning, Labor Problems in War Industry, and Medical Problems in Operational Flying. In nearly every case it is possible to obtain an expert in each of these subjects and their various phases who lives and works sufficiently near to be able to afford the time to visit the college and to deliver a lecture including the latest possible information.

England is in a theater of war and is not a very large country. The wartime staff college of the Royal Air Force is close to London and full advantage is taken of these factors in obtaining experienced lecturers from outside the college to supplement the staff in providing the seventy lectures which, together with the exercises and syndicate discussions, form the backbone of the course. The majority of the lecturers are from outside the college and are either senior commanders or staff officers, or, in some cases, officers or civilians who have had exceptional practical experience of some special subject. Lectures are divided into fifty-minute periods and at the end of each a period is left for discussion. With only approximately seventy people in the room these discussions become of very great value and their importance is considered to be equal to that of the lecture itself. Students are encouraged to get up and to express views rather than merely to ask questions. The minimum control is exercised over discussions and normally the only control required is the indicating of the order of speakers when more than one wishes to speak at once. Students are encouraged to clear up one aspect of a subject before fresh ground is broken and on the whole they do this remarkably well. Frequently original and practical suggestions are put forward and visiting lecturers have often commented on the impressive quality of these discussions at the staff college. Opportunities are also taken during each course of entertaining distinguished visitors and of introducing the students to them. These visitors are invited to give addresses and to hold informal discussions, if convenient. The list of visitors during one course included the United States Ambassador, Prince Bernhard of the Netherlands, Lord Louis Mountbatten, Lord Trenchard, the Secretary of State for Air, and Air Chief Marshal Sir Arthur Tedder.

The foregoing gives an outline of the main basis of the training at the Royal Air Force Staff College in war time. Added to this is a series of visits to nearby units which greatly help the student in obtaining a truly practical picture of his Service. There is a two-day visit to nearby bomber airdromes during which students attend at the briefing of crews

before an operational flight and at the interrogation on their return as well as seeing the general organization and layout of a modern dispersed airdrome. There is also a one-day visit to Fighter Command Headquarters during which the students see the operations room in action and also visit the school where all the controllers in our operations room are trained. Further visits are to Coastal Command Headquarters and to an Army Battle School where a demonstration is given of modern light weapons and their tactical use. These visits not only give the students practical background but also serve as a friendly link between the staff college students and staff officers in appointments. This friendly feeling is of great value and is much added to by the visits and addresses of the outside lecturers and notabilities during each course.

The Royal Air Force Staff College is very much on a war footing. The students sleep in Nissen huts, the college building is a large commandeered house, rationing and the blackout are perpetual nuisances, and there is no time for the more leisurely pleasures

which could be interspersed into the hard work of the much longer and more complete peacetime course. The general principles and the atmosphere of the college, however, have not been changed. The war experiences and length of service of the students and directing staff have in large measure made up for what has been lost in so radically shortening the course due to the pressure of war. The advantages of the syndicate system with its close contact between student and instructor and free discussion of ideas have been fully retained from peacetime. The quality of the lectures, whether by college staff or from outside sources, is high. The principle that staff duties must be thoroughly taught and learned has been retained, without losing sight of the fact that they are only a means to an end. The present course does succeed, remarkably in the time available, in both teaching its students a considerable amount of staff work and detail and at the same time broadening their outlook and helping them "to use intellect and personality in combination to exploit their natural talents."

General Montgomery on the Use of Air Power

WHEN YOU fight you have at your disposal certain military power—Army and Air—and the side which makes the best use of that power wins the battle. You have got to think clearly, to be absolutely right on the big things that make up the foundations of warfare. If you go wrong there, you go more and more wrong as you go along. These are the broad principles, which have been very successful indeed.

You must win the air battle before you fight the land or sea battle. If you examine the conduct of the campaign we fought from Alamein, through Tunisia, Sicily, and Italy, you will find that we never fought a land battle until the air battle was won. That is the first great principle of war. We (the Army) never bother about the enemy air at all. The RAF fights that battle for us.

The second great principle is that army-plus-air—the Eighth Army and the desert Air Force, if you like—have to be so knitted that the two form one entity.

The third great principle is that the RAF side of this fighting machine—the Army and Air are one fighting machine—must be centralized and must be under Air Force Command.

The next principle is that the army commander directs the military effort and the RAF commander with him applies the air effort in accordance with the combined plan. That is to say, there are not two plans,

army and air, but one plan, army-plus-air, which is made by me and the air vice-marshal, and the air power is applied by the air officer commanding to fit in with the combined plan, while the army commander directs the military effort.

The Army does not command the air, so the two sides, Army and Air, must be together in the same headquarters and there must be complete mutual confidence and trust. Each must understand the problems and difficulties of the other.

As regards the use of a striking air force in the land battle, we do it and have brought it to a high pitch. We started it in North Africa and have now got to the stage where, in the battle of the Sangro, we had a group captain with us at Official Headquarters directing the fighter-bombers to targets wanting treatment at that moment.

If you can keep up the power of the Army on the land and the power of the Air in the sky, then nothing will stand up against you and you will never lose a battle.

The integration of Army-Air has been closely followed by us, and you see the result. I doubt if you will find such close integration anywhere else—certainly not in the German army.

(British United Press in *The Times*, London, 29 December 1943)

Capabilities Relearned

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IN 1929 a book was published entitled *Outlines of the World's Military History*. The author, the late General W. A. Mitchell, was Professor of Engineering at West Point at the time, and an authority on military history. At the conclusion of his chapter on Genghis Khan he wrote the following:

"This battle teaches several important military lessons. It dissipates the illusion that the white race alone can furnish military leaders. The Mongol strategists were in a class with great leaders. Asia produced these wonderful generals; *and it may produce similar generals in the future*. Likewise, Asiatic leaders trained these remarkable soldiers who defeated Europe's best in campaigns where European rules of strategy were not applicable to the Mongols because of their superior mobility and greater tactical strength. *Asia has produced the most merciless conquerors of all time*. We should study the results obtained by Asiatics under the limited instruction of Genghis and a few others, *and realize that similar leaders may arise in the future*." (Italics ours.)

The Mongols realized the necessity of unity of command, the value of "fifth column" activity, and the possibility of winning battles by overcoming terrain obstacles instead of considering them a barrier.

Genghis Khan went to war for much the same reasons as Japan. Fine pastures meant better living and to the strongest nomadic tribes went the most fertile pastures. Then, too, weaker tribes often paid tribute to the stronger. Genghis was a gifted leader and in time united all the Mongolian tribes and himself became master of the Gobi. Under Genghis' brilliant leadership his army thirsted for battle. Genghis was especially interested in military authority, since victories created in him a zealous fervor for conquest; and he firmly believed his united Mongolia could conquer the world.

Genghis defeated Mohammed Shah and conquered Persia by the simple expedient of fighting terrain, appearing where the Shah felt he couldn't be, and completely surprising the Persian Army which was over twice the size of that of Genghis. Genghis concentrated his forces south of Lake Balkash (see Figure 1). He covered his concentration by sending

an advance guard under Juchi to the lower reaches of the Syr Daria River. Juchi effectively screened the concentration. Genghis at the same time sent his reconnaissance agencies, an elaborate spy system, into Persia. He never wanted for information. The Shah mustered an army of 400,000 and moved north to find Genghis. He adopted a cordon system and strung his forces along the Syr Daria line in strong detachments.

Genghis started his campaign by sending Chepe with 20,000 men through a southern pass in Fergana toward Kohjent to threaten the Shah's right flank. At



FIGURE 1.

THE PERSIAN CAMPAIGN OF GENGHIS KHAN, 1219-1220*

the same time two Mongol armies, one of 35,000 under Jagati, and the other of 50,000 under Genghis himself moved west, screened well by skirmishes and the vast desert. The Shah advancing north ran into Juchi southeast of Otrar. Genghis sent Jagati to aid Juchi. While Jagati and Juchi contained the Shah's army and Chepe moved on Samarkand after taking Kohjent, Genghis disappeared in the Kizyk Kum desert. This desert was considered impassable

*Maps in this article are from Brigadier General W. A. Mitchell's *Outlines of the World's Military History* (Harrisburg, Pa.: Military Service Publishing Co.)

for an army. The capability of movement across it was not considered by the Shah. Covered by the diversion of Chepe in Fergana and by the advance of Juchi and Jagati, Genghis kept his movements a secret and completely surprised the Shah when he debouched from the desert in the Persian rear. With the converging of the four armies on Samarkand, the Shah's empire fell.

The vast fortress at Singapore was built on the premise that the jungles to the north in Malaya were in effect a Kizyk Kum desert—impassable for an army. The Japanese fought that terrain, moved through those jungles which were "impassable for an army" just as Genghis had crossed the "impassable" Kizyk Kum desert. Would the cost of implac-

trolled by the Mongols. A glance at Figure 2 will show the extent of the Mongolian conquests. Under Sabutai, the Mongolian armies invaded Hungary, defeated two Polish armies at Szydlow and a combined German and Polish army at Liegnitz, and annihilated the Hungarian Army of 100,000 at the Sajo River. Sabutai had moved over 4,000 miles away from the Gobi, conquered thirty-two nations, and won sixty-five pitched battles.

In addition to the invasion of the western world, Genghis and his successors conquered and subjugated the vast Chinese empire. Thus Genghis' dream of world empire became a reality under the rule of his grandson Kublai Khan. It took nearly a hundred years—from 1206 to 1294.



FIGURE 2.
THE MONGOL EMPIRE AT ITS HEIGHT

ing guns for all-around fire, the cost of fortification against an attack through the jungles, have been prohibitive? That was not the question. An army simply could not move through that impassable jungle. This very jungle was the barrier on the north.

General Mitchell stated that Asia has produced the most merciless conquerors of all time. After the defeat of the Shah's army, Genghis proceeded to establish military control over all Persia. One city, Herat, deposed a Genghis-appointed ruler, and an army of 80,000 was sent to punish it. After a nine-month siege the city fell and for six days the Mongols sacked, burned, and ravaged it—1,600,000 people died in the massacre.

Genghis Khan visioned a world ruled and con-

An enemy capability is any line of action open to the enemy which, if adopted, will interfere with the accomplishment of our assigned mission. Our mission is the defeat of the Axis powers and the restoration of peace in the shortest possible time. Any action short of unconditional surrender by the Axis powers will interfere with this mission.

Failure of the Shah to consider the capability of Genghis moving his army across the Kizyk Kum desert cost him his empire.

Failure of the Germans, the Poles, and the Hungarians to consider Sabutai capable of moving so far from the Gobi cost them thousands of lives and much territory.

Failure of the people of the city of Herat to con-

sider Genghis capable of enforcing his rule cost them the city and all living things within the city.

Thirty-two nations failed to consider the Mongols capable of menacing their security and as a result fell under the Mongol rule.

In this war the Allies have suffered many times by failure to appreciate the enemy capabilities.

The fall of France, the invasion of the Balkans,

the fall of Singapore, the losses at Pearl Harbor, and the Kasserine defeat were all directly or indirectly the result of failure to appreciate fully the enemy's capabilities. These are only a few. We are learning to respect the capabilities of our enemies. It is regrettable we have had to learn the hard way, the same as the enemies of Genghis Khan, but at least we are learning.

Construction Troops of the German Army

[Translated for the Command and General Staff School, Fort Leavenworth, Kansas, from an article by Lieutenant Colonel Erich Klingbeil, German Army, in *Hamburger Fremdenblatt* 6 July 1943.]

THE MODERN war machines and supply vehicles, even including those able to travel across country, are still dependent upon the use of highways for the mastering of long distances, and therefore the armies of today are more than ever dependent upon the density and condition of the road net. Consequently the highway itself is a means of combat, and its possession or lack of possession often has a decisive influence on the conduct of an operation. Modern military leadership is thus confronted with a maze of technical problems covering a wide field of action which the operational engineers alone cannot master. For this reason special construction troops have been created in order to relieve and augment the engineers in the performance of purely constructional duties. According to their mission we distinguish them as bridge, road, railroad, fortress, and ordinary construction battalions.

In order to insure the speedy execution of unit movements under any conditions during our advance into the vast eastern theater of war, an army of construction forces was developed consisting of GHQ construction troops, Labor Service detachments, and units of the Todt Organization and of the Technical Emergency Service, all of which were especially adapted to the requirements of a war of movement after the experiences of the Polish campaign of 1939.

Road construction projects were organized as follows: those GHQ construction units which were in the first wave with the combat troops and under the command of the regimental commander of the engineers had the assignment, in cooperation with the engineers, of opening the approach roads for the fighting units by removing obstacles, repairing damaged areas, bridging mine craters, and cleaning up the villages destroyed by artillery and dive bombers. But because of the all-important time factor this was only a temporary makeshift road-repair job, while the task of thoroughly reinforcing the road surface by the use of wooden planks and logs fell upon succeeding construction forces which were employed on

the supply routes under either a Superior Construction Staff or a Construction Troops Commander. Assurance of speedy repair and maintenance of the highways was offered by timely planning in the storing of construction material, constant supervision of the sectors assigned to the various construction units, and establishment of special "Reporting Stations for Road and Bridge Damage" especially after storms and periods of heavy mass traffic. Systematic construction of drainage systems proved necessary and advantageous.

An especially efficient and strong construction detail was required for the speedy bridging of the numerous river barriers in the Soviet theater of war. In order that the temporary ponton bridges of the engineers might be made available for further use in the combat zone, the expeditious substitution of the destroyed artificial bridges by auxiliary bridges capable of carrying all types of army equipment was of great importance. Those construction troops assigned to this duty followed the combat troops very closely in order to begin early with the planning of the procurement of necessary materials and the actual construction. The building of very long bridges was necessitated by the width and the volume of the Soviet rivers. It was not practical to build the bridges too close to water level because of the great fluctuations of the latter. Double-trestle and pile bridges with an average trestle interval of five meters were preferred for the sake of swift construction.

The construction troops were frequently employed in field fortification work (construction of obstacles and bunkers) and in the erection of strongpoints and winter lodgings. These troops had to become fighters too, outgrowing the purely constructional tasks assigned to them originally. Not only were they constantly fighting enemy patrols, airborne troops, and guerrillas behind the front, but during the severe winter months they acted also as active defenders in the front lines, shoulder to shoulder with the other arms and services.



MILITARY NOTES AROUND THE WORLD



CANADA

Reorganization of the Army in Canada:

The changing picture of the war has made possible a reorganization of the Canadian Army in Canada. As a result of the lessened threat of enemy action against this continent, the number of troops assigned to operational tasks in Canada (principally in connection with the defense of the Atlantic and Pacific coastal areas) is being reduced by about 20,000, thus freeing substantial numbers of men for overseas service. It will permit the return to civilian life of those whose age or medical category makes them unsuitable for further military service.

In view of the intensified offensive against the enemy in Europe, the demand for reinforcements for overseas service continues. Recruiting efforts therefore are being intensified, and many of the troops affected by the reorganization in Canada are being reallocated as potential reinforcements and to fill up units from which men have been withdrawn and sent overseas.

(*Canada at War*)

U. S. S. R.

A Method of Tank Defense:

According to German reports, the Russians spread a layer of grease on tank armor in order to prevent the German tank hunters from climbing on top of the vehicle to fasten explosives to the turret.

(*Die Panzertruppe*)

The Pripet Marshes:

The river Pripet is a tributary of the Dnieper and once again the famous Pripet Marshes, in which during the last war thousands of Russian and German troops were drowned, have been a battlefield. Much of the large area they cover, lying in the Polish Province of Polesie (meaning woodland), is inhabited only by waterfowl and a few animals such as beaver, wild boar, and elk; but the greater part is forest and cultivated land with a small peasant population. In the late 1930's, when an aerial survey of the region was made by the Government, one village was discovered, in the wildest parts, where news of the last war had never penetrated.

(*The Geographical Magazine*, Great Britain)

CHINA

The Chinese Guerrillas:

The principal facts to be noted about the present situation in North China are these: The areas over which the Japanese exercise undisputed control are relatively small. Around and between the main cities and railway lines, Chinese guerrilla troops have won control over large areas and set up genuinely democratic local and district governments to mobilize all sections of the population for resistance. These "guerrilla bases" or Border Region Governments, operating in Hopei, Shansi, Shantung, and Honan, control an area estimated as approximately 100,000 square miles, with a population of between twenty-five and thirty million. In the most recent period for which official statistics are available, these guerrilla forces, led by the Eighth Route and New Fourth Armies, accounted for nearly half the total casualties inflicted on the Japanese by all Chinese armed forces.

(*Amerasia*)

UNITED NATIONS

Statistics on the Sicilian Campaign:

Statistics on the Sicilian campaign are roughly as follows:

Prisoners, German and Italian, who passed through the cages exceeded 135,000.

Enemy losses in killed and wounded were not less than 32,000.

These numbers, which do not include considerable casualties inflicted on the enemy in the last week of the campaign, make a total of 167,000 in killed, wounded, and prisoners of war.

The enemy's losses in tanks, destroyed or captured, were 260, while in guns for the same period at least 502 were destroyed or captured.

The total of Axis aircraft shot down or captured on the ground was 1,013. Of these 598 were German.

These figures do not include material destroyed or captured in the final week of fighting, and many thousands of vehicles of all types and great quantities of stores were subsequently collected over the battlefield.

(From an article in *The Fighting Forces*, Great Britain)

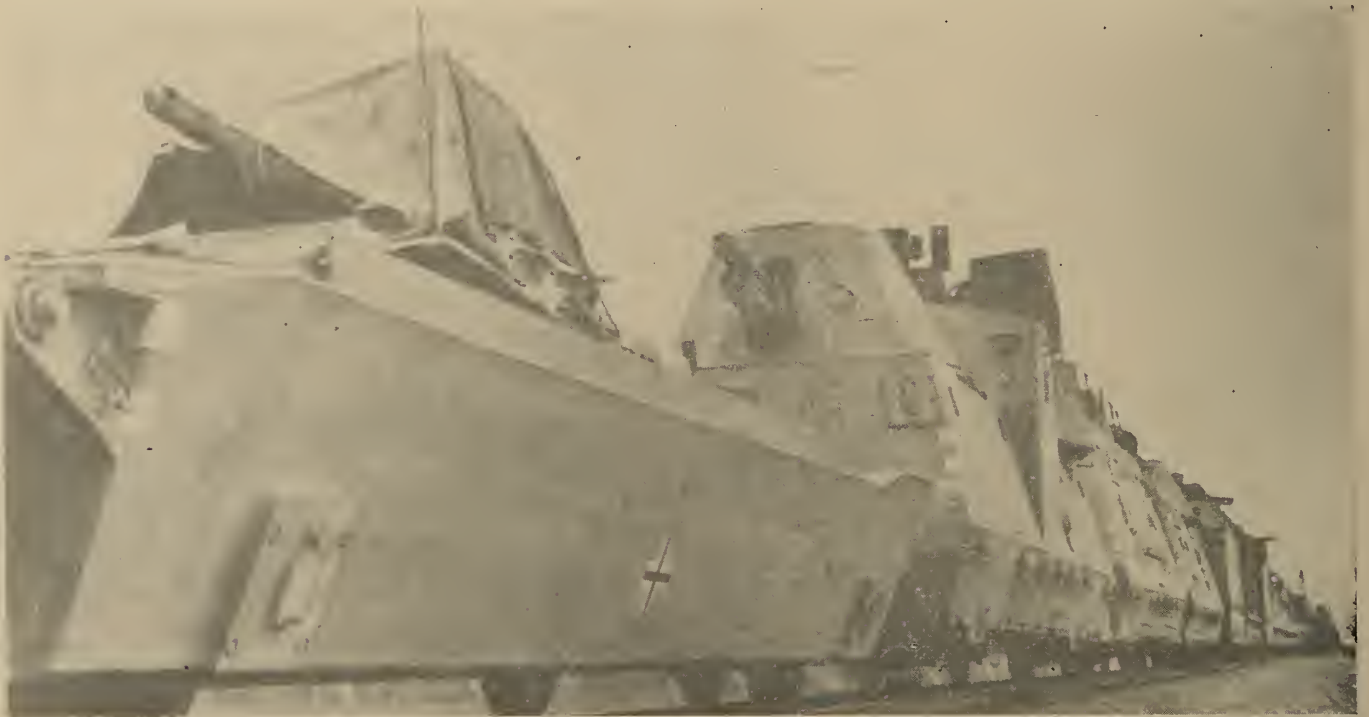
GERMANY

A Rolling Fortress:

The German armored train shown in the picture below carries, among other things, several heavy cannon, two light tanks which at any time may come down out of the train and operate on the terrain, and a workshop which is equipped with all the sup-

plies necessary to repair damaged railway tracks. An armored scouting car (lower left) travels ahead of the train to see that the way is open and the road in order. When hostile planes approach, the four barreled anti-aircraft cannon (lower right) goes into action.

(*Kölnische Illustrierte Zeitung*)



COMBAT CARS OF A GERMAN ARMORED TRAIN.



ARMORED SCOUTING CAR.



ANTI-AIRCRAFT DEFENSE.

Public Health:

According to reports from Germany, the use of sedatives has increased tremendously among the bombed population. These preparations have now been rationed to insure sufficient supplies for hospitals. It has been reported from Vienna that Jewish and Polish physicians have been placed in military hospitals because of the acute shortage of doctors. It is estimated that each physician in civil life serves 12,000 inhabitants. Antityphus vaccinations of citizens and even of members of the Army cannot be carried out routinely because the vaccine suffices for only the Army hospital personnel. Since 1931, sickness in Germany has risen sixfold.

(Bulletin of the United States Army Medical Department)

GREAT BRITAIN*"Mosquito" Fighter-Bomber:*

The de Havilland "Mosquito" is a fighter-bomber similar in most respects to the Mosquito II long-range fighter, and armed with the normal four 20-mm cannon and four .303-inch machine guns mounted in the nose. Additional features are long-range jettisonable fuel tanks fitted under the wings outboard of the motor nacelles and provision for a bomb load of 1,000 pounds stowed internally in the rear half of the bomb bay. Airplanes of this type are being used on intruder operations in place of the Mosquito II's, which carried no bombs.

(The Aeroplane, Great Britain)

Air Raid Casualties:

The Ministry of Home Security's review of 1943 shows that German air raids on England resulted in 2,347 killed and 3,421 seriously injured in the first eleven months of 1943, compared with 3,112 killed and 3,948 seriously injured for the same period in 1942.

(British Information Service)

Elephants in the Army:

Elephants are doing a war job on the Burma border. They are partners with British and Indian soldier-engineers who are making the new roads along which battle supplies will be hauled.

The elephants are specially trained in placing heavy logs. Officers with many years' experience in elephant work in Burma are in charge of them.

The elephants have been specially drafted into one of the strangest armies in the world, the vast concourse of men, animals, and machines which is opening up the wild jungle tracts for the supply convoys. Elephants, sappers, coolies, tribesmen, bulldozers by the dozen, and trucks by the hundred—all are toiling together to open new ways of war into Burma.

(The Tank, Great Britain)

UNITED STATES*The Navy's Grumman Hellcat:*

The Grumman Hellcat fighter (F6F) went into action for the first time in the naval task force raid on Marcus Island on 1 September. This gives the Navy what are believed to be two of the finest ship-board fighters in the world, the other being the Vought Corsair, both planes powered by Pratt and Whitney engines. The Hellcat inherits all the good qualities of its predecessor, the Wildcat, which has such a distinguished reputation in Navy and Marine Corps aviation, and adds many more—increased range, speed, climb, maneuverability, and altitude capacity.

(Marine Corps Gazette)

New Pack-mule Litter in New Guinea:

A pack-mule litter being tested out by American soldiers somewhere in New Guinea. The man in the rear steadies the litter to prevent excessive rocking.

(Signal Corps Photo)

New Walkie-Talkie:

The Army has a new "Walkie-Talkie" that does both with greater efficiency. Its range is triple that of the old model and it has a remarkable clarity of tone due to the use of frequency modulation, permitting staticless transmission and reception.

A headset is included in the new model, being distributed at home and overseas, enabling the operator to "listen in" for a call, while a handset is available for use by the officer in command.

(The Army Officer)

Special Sleeping Car for Troops:

A sleeping car exclusively for the use of military personnel on long trips has been designed for use on American railroads. Shorter and lighter than the regular Pullman, the new car accommodates thirty



men in a special triple-deck berth arrangement, one man to the bed. Berths are set crosswise in sections extending from one side of the car with the aisle on the other side instead of in the center. The two lower berths fold into long and comfortable seats for use in daytime. There are four washstands and two enclosed toilets in each car.

(The Santa Fe Magazine)

Air WAC's:

Members of the Women's Army Corps are now serving 20,000 strong at airfields and air bases in the U.S. WAC's are filling two hundred different jobs in the Army Air Forces, such as Link trainer operators, parachute riggers, cryptographers, camouflage technicians, weather observers and flight control tower operators. One Air WAC, an expert watch repairer in civilian life, is now a bombsight repairer. Another, a dog fancier, has a key position in the dog training program of one of the domestic Air Forces. The great majority of Air WAC's are filling less unusual, but equally essential clerical, communications, and motor transport jobs. The Army Air Forces need over 100,000 additional WAC's to serve on domestic airfields and thousands more overseas. The WAC's serving our air stations are carrying on with the efficiency and effectiveness exhibited by the men whom they replaced. Thus we are saving man power.

(Report of the Commanding General of the Army Air Forces to the Secretary of War.)

Army School of Malariology:

An Army School of Malariology is to be opened at Panama early in 1944. This school represents the unification in a suitable location of various facilities which the Army has used heretofore for training a group of specialists. A great and expanding necessity for personnel trained in malaria control was the

cause for specialized training courses which in the past have been conducted through the cooperation of the Tennessee Valley Authority, the Florida State Board of Health, the Rockefeller Foundation, and the Pan-American Highway Commission. The scattered location of the training areas has made instruction difficult and time-consuming. From the beginning, the Surgeon General's Office has wanted to coordinate these efforts, and it has now become possible to unify them in the Panama School. Instruction will be given by a staff which has had wide experience in the control of malaria all over the world, both in peacetime and in the areas of present military operations. The men trained in Panama, together with the present Army malariologists, will form a group of specialists who will be valuable in both war and peace.

(Bulletin of the United States Army Medical Department January 1944.)

New Fire-fighting Apparatus:

The photograph shows the Class 1010 crash trailer used by one of the newest Aviation Engineer units, the Fire Fighting Platoon. Water from the tank is pumped at very high pressure and the resulting fog from the nozzle can be used to drive back flames and protect a rescue party from the heat. This new



theory of fire fighting by use of high-pressure fog nozzles which permits the fire fighters to get up close to the burning object has worked very well in practice, and the Fire Fighting Platoons will be enabled to save many crews who would otherwise be doomed from their burning planes.

In the combat area where airdromes are subject to enemy bombing, Fire Fighting Platoons will have to fight fires on all types of installations; and these units are being trained to tackle anything in this line that might come along. These platoons, which become a part of the station complement, automatically become a part of the defense organization of the base, and their training as soldiers and skill in the use of the carbine is not neglected.

(Aviation Engineer Notes)

FOREIGN MILITARY DIGESTS

The Commander's Place in Battle

[Translated for the Command and General Staff School, Fort Leavenworth, Kansas, from a Russian article by Major V. Vladimirov, Soviet Army, in *Krasnaya Zvezda* 30 July 1943.]

THE REGIMENTAL commander telephoned three times demanding a report: What are the companies doing? Where are they located? The battalion commander, Captain Gunia, answered vaguely. According to him, the units were making progress, and this was true. But he could not state exactly where they were or what resistance they were encountering. This made the commander angry and he said quite a few unpleasant words to the captain. The fact was that nothing happened in the way it had been anticipated by the captain. The signalmen got lost somewhere, and reports from the company commanders were not coming. Furthermore, he saw absolutely nothing from his observation post, nor was it easy to determine from the sounds what was happening up ahead.

"I'm going to see Lebedinsky," the captain said to his adjutant. "You stay here and try to get in touch with the other companies."

And here is what happened an hour after this conversation. Captain Gunia got interested in the offensive battle raging on the left flank of his battalion and took over the command of Lebedinsky's company. The adjutant continued to sit in the old observation post and to receive delayed and incomplete information concerning the actions of other companies. But in the meantime the situation on the right flank became more complicated. The enemy moved his tanks there. They could have been stopped by artillery fire, by simply picking up the telephone and informing the regimental commander. Nobody did this, however. The battalion commander was with the left-flank company, while his adjutant, who had stayed at the observation post, saw nothing and knew nothing. And so it happened that the battalion commander let the reins slip out of his hands and could not control the battalion. As a result the offensive operations of the battalion as a whole were disrupted.

Why did this happen? That's very simple. The battalion commander did not find his place in the battle. At first he became detached from his units and could not see them; then, instead of correcting his mistake, he remained with one of the companies,

forgetting that he was responsible for all of them. No wonder he could not direct the battalion and did not know of the counterattack undertaken by the enemy.

In this case we see a flagrant violation of the infantry battle regulations which require the battalion commander to be behind the battle formations of his units and in a place which will enable him to observe battle operations both of his own units and of those on the flanks of his neighbors. He should be able to see his battle disposition and observe the enemy. Captain Gunia neglected this most important requirement and therefore did not accomplish his mission.

Our manual is a digest of battle experience. Each word recorded there has been tested in the field tens and hundreds of times. The regulations are intended to insure precise control of troops under the most complicated and severe conditions. What should Captain Gunia have done in order to observe the operations of his companies? Should he have established his observation post out in front inasmuch as the terrain was broken, or in the rear on a hill? It is impossible to have a solution for each case. The regulations, however, state that a battalion commander should be able to observe the battlefield, no matter what the circumstances may be. Messengers can fail him, communications can fail him, but his eyes will not, and he should be able to direct the battle all the time. To do this he does not have to visit the companies and attend to everything. Frequent absence from the command post disrupts the direction of battle.

We do not intend at all to underestimate the value of personal contact between the commander and his subordinates. But this should be done wisely, so that control of battle is not lost. The *Battle Regulations of Red Army Infantry* state: "Personal contact among battalion and regimental commanders and their subordinates is of prime importance. It enables the commander to transmit his will and directions directly to his subordinates; it enables the subordinates to get confidence in success out of this contact with the commander. Personal contact is especially important before the battle and when a marked change in the situation takes place."

In modern battle of maneuver, such changes in the situation occur quite frequently. Our attacks are followed by the attacks of the enemy, and vice versa.

The decisive part in the battle may suddenly shift from infantry to artillery. It is not surprising, therefore, that the place of the commander will change. The important thing is that he should choose the place where his presence is most needed.

Nor should it be overlooked that modern infantry battle formations are saturated with attached and supporting weapons, which are highly mobile. It is the duty of the commander to see to it that they too are properly employed. Therefore the commander's place must be determined not only by the location of the formations of his unit, but also by the disposition of all the elements cooperating with him. In short, his place is where he can see better what goes on on the battlefield, where he can insure communications, and where his personal presence is needed.

It should also be kept in mind that excessively frequent changes of command and observation posts, as well as too frequent visits to subordinate units, disorganize the work of his subordinate commanders. Worse yet is the situation in which the commander takes over the duties of his subordinates, forgetting his duty of directing the battle. As long as the means of communication at his disposal—telephone, radio, and messengers—enable him to know what happens in the subordinate units, as long as he can personally observe the unfolding of the battle and the situation does not require his presence in lower headquarters, then his place is at his command post. If, however, communications are disrupted, if the commander is no longer able to observe his battle formations, or if the situation demands his presence in the lower units, then he must change his place.

All this does not mean that there is a stereotyped formula for determining where commanders of different units should be located. The regulations require that the battalion commander should be able to see everything that happens in his sector, and that the regimental commander could observe everything at least in the direction of main effort. Everything that happens beyond his field of vision should be made available to him by precise and uninterrupted communication. Even this, however, does not mean that the regimental command post will remain immovable throughout the battle. Battles frequently make even regimental commanders change their places.

A regiment commanded by Major Miroshnichenko was under attack by a numerically superior enemy infantry unit supported by tanks. Having established the direction of the enemy main effort, comrade Miroshnichenko set up his command post in the rear of the battalion directly in front of the enemy concentrations. The regimental commander could not see his other battalions from this command post, but they were in constant communication with him and made timely and detailed reports.

Quite suddenly, the enemy changed the direction of his thrust, and the battle became intense at once.

What was Major Miroshnichenko to do? He could move his command post to the rear of another battalion inasmuch as it was now impossible to see what was going on in the main direction, or he could remain where he was, depending on the phone for the direction of the battle. The Major chose the second alternative, which was undoubtedly correct. If he had changed his command post in this critical moment, he would undoubtedly have found himself out of touch with the battle for quite some time and would not have been able to provide either artillery or any other support to his units.

Then the artillery fire of the enemy disrupted the wires to the battalion. It was clearly sensible to abandon the present command post and to move to the alternate one previously prepared on the other flank of the regiment. Another good reason for doing this was the fact that the amount of time needed to restore communication would have been greater than that required to effect the transfer to the alternate command post, which had good visibility throughout the entire depth of the attacking battalion.

The wires to the alternate command post are also cut, but the regimental commander can see the battlefield and direct the battle. He also makes use of messengers. But finally, the enemy's attack reaches its peak. His infantry is cut off from his tanks by our fire. Many of his tanks are burning. At this moment, however, six enemy tanks carrying infantry detachments atop them break through our forward edge. The infantry and tanks get established near the second line of our trenches which are not yet occupied by anybody. Realizing the gravity of the situation, the Major throws his reserves into the battle. Simultaneously he orders the artillery to destroy the tanks by fire at close range.

It's getting dark. The repeated attack of the enemy is beaten back and his main forces have not passed through our forward positions, but the liquidation of the group that has broken through is not completed. The artillery and the reserves which are given the mission to destroy this group are showing little cooperation. The commander's presence is imperative in order to take care of this danger. In the rear of the regiment Major Miroshnichenko joins the commander of the attached artillery battalion, and together they work out a plan for the destruction of the enemy group. This personal intervention expedites the action against the enemy tanks.

As we see now, the commander in this case determined correctly his place in the battle. It always depended upon the situation and the communication facilities available, and upon the possibilities of observation. In the *Battle Regulations of Red Army Infantry* we find this: "Battalion and regimental commanders direct the battle from command posts. Command posts (main and alternate) are set up at distances from advance battle formations which allow the commander of a battalion to observe the

field of battle and the operations of his battalion, and the commander of a regiment, the operations of his regiment at least in the direction of the main effort. The regimental commander should also be able to exercise personal direction of his subordinate unit, should be in constant communication with them, and, if necessary, should intervene in the battle personally." This regulation requirement was followed by the regimental commander. During each stage of the battle he was where his presence was needed and where he could direct the battle most readily.

Casualty Air Evacuation in Italy

[From an article in *The Royal Air Force Quarterly* (Great Britain) December 1943.]

CASUALTIES removed from Italy by air constitute a high proportion of the total incurred in that theater.

Several thousand sick and wounded men, mainly of the Army, have been evacuated from the Italian mainland since the first landings by the casualty air evacuation units of the Royal Air Force Medical Service, which thus continues the work initiated in the Western Desert, developed on the long road to Tunisia, and brought to its present pitch of organized efficiency in Sicily.

The Americans are handled by their own air evacuation service. British casualties have come from all parts of the front, having been picked up by transport aircraft at as many as ten points on the Italian mainland, and flown thence to an intermediate base in Sicily. From this point the majority have subsequently been conveyed, again by air, to base hospitals in North Africa. In September, for example, some hundreds of cases were flown back to Sicily and in the same period nearly all these cases were moved back from Sicily to North Africa by air. The service came into operation within a week of the first landings.

In the development of this system now in being, the Desert Air Force has played the main part. Air evacuation of casualties is not new but it had never before in British experience been operated in circumstances such as prevailed in the Western Desert. Here the method was employed initially purely as Royal Air Force service by which the casualties of the force in the desert were cleared to base establishments in Egypt. Before long, however, as the great possibilities were recognized and exploited, it was extended and to a large extent integrated with Army medical units, although it was established at an early date that the organization and control of air evacuation of casualties should be the responsibility of the Royal Air Force Medical Service. In point of fact, on occasions when Army medical units have functioned as components in the system, they have come under the direct control of the RAF medical authorities.

In the early days much good work was done by air

ambulances, designed and exclusively employed as such, but experience has shown that their role is strictly limited and the large-scale operations carried out have depended on using transport aircraft which have been taking stores forward and would otherwise be returning empty to base. It is this marriage of the air-transport system with the air-evacuation system which has made possible the evolution of the plan on the scale now existing. Originally transport aircraft were used as opportunity offered in a somewhat haphazard way, but before long it was decided that casualty evacuation must be regarded as an essential task and this traffic, from front to rear, has been given a very high degree of priority.

The first link in the air-evacuation chain of the RAF is the casualty air-evacuation unit. In Sicily and again in Italy such units were established at all forward airfields as soon as they were occupied by the RAF. Thus no matter where a transport aircraft may land in the forward area, any available casualties are waiting ready to be despatched to base as soon as the forward load has been dealt with.

All transport aircraft are fitted so that they can be adapted to take stretchers in a few minutes. The humanitarian aspects of the speedy removal of sick and wounded men from the battle zone to base hospitals, where they can receive the finest specialist treatment, will be readily appreciated. It is perhaps less obvious that the air casualty evacuation scheme as it is now working effects great economies in transport by employing aircraft which would otherwise be flying empty. Thus it takes from other transport agencies a very heavy burden of traffic.

The gain in time is almost incredible: in one phase in the Western Desert, for example, casualties were flown out in about two hours from a position in almost impassable country from which they could not have been removed by road transport in under three days. In addition, patients benefit very greatly by the elimination of journeys over rough roads and broken ground while in critical condition.

Many badly wounded men undoubtedly owe their lives to their removal from the front line area by air. This consideration applied particularly in the desert campaign and it may be recalled, as showing the large part played by air evacuation as organized by the Desert Air Force, that between the time of El Alamein and the fall of Tunis many thousands of cases were handled. Further, by using air transport in Tunisia it was possible to evacuate Eighth Army casualties westward towards Algiers on the first stage of their journey to the United Kingdom, the returning aircraft taking eastwards from the First Army area Indian casualties who were being evacuated towards Egypt.

At the intermediate base in Sicily casualties are received once more by RAF medical units and sent in the first instance to Army hospitals where less serious cases are retained, while the bulk, as already

indicated, are subsequently moved by the RAF organization by air to the mainland of Africa. At the base airfields there, the reception and dispersal of the casualties to the most appropriate treatment centers is again in the hands of the Royal Air Force Medical Service.

There is, however, the closest co-operation between the services at all points: the organization is necessarily highly flexible. For example, casualties are normally passed to the forward air-evacuation units of the RAF by the Army's casualty clearing stations; at Foggia, however, the RAF unit was in advance of the casualty clearing stations and Army casualties were therefore turned over to the RAF organization by the main dressing stations of the Army field ambulances.

The great lesson learnt in the Western Desert was that the successful conduct of air evacuation of casualties on a large scale is conditioned by air superiority. In Sicily and Italy conditions have, of course, been generally favorable, and the evacuation machinery, systematized following the experience gained earlier, has worked smoothly and effectively although it can by no means be said to have reached finality. Great advances are still to be expected and the "trial and error" methods which have so far yielded such good results are being continued.

But a sound working method has been evolved. Army medical units, by far the main source of casualties for evacuation, are gaining experience in the selection and "conditioning" of cases for air transport and are positioning their units so that they dove-tail into the air evacuation plan; the forward RAF air evacuation units are now integral parts of the medical organization of the forward RAF wings; close liaison is maintained by the medical side with flying control (who govern the movements of aircraft in the forward zones) and with Transport Command formations who furnish the aircraft.

With the American forces the RAF Medical Service has enjoyed the happiest relations in this as in other spheres. In the Western Desert two American groups were cared for by the RAF Medical Service apart from their own limited unit resources, while following a visit by an American officer to the Desert Air Force it was agreed that all American transport aircraft should be fitted to take both the American and the British types of service stretcher.

Self-Propelled Artillery

[Translated for the Command and General Staff School, Fort Leavenworth, Kansas, from a Russian article by Major-General M. Nozdrunov in *Zhurnal AvtoBronetankovikh Voisk* (Armored Force Journal), No. 7, July 1943.]

THE APPEARANCE of self-propelled artillery on the battlefield served the purpose of counteracting the great firepower and complicated fortifications of modern defense. A strong defense

can now be quickly organized, even under battle conditions. It takes only a couple of days to prepare a position that will withstand an attack—artillery and tanks are brought up, bonnets with fire points appear, and in a few more days permanent firing positions are constructed. The attacker is forced to check his advance and start gnawing through the defensive system. Heavy artillery is required to demolish the fortifications and destroy enemy firepower. The closer this artillery is to the fortifications, the sooner it will destroy them. But such proximity requires protection for guns and their crews against bullets, shell fragments, mines, and even direct hits.

The above considerations necessitated the creation of self-propelled artillery. Due to its great mobility and maneuverability, self-propelled artillery can make sudden attacks on enemy defenses from the flanks or from the rear and direct intensive fire at troop columns and concentrations. The precision of its close-range fire, its quickness in destroying firing positions, its maneuverability, and its ability to change firing positions enable self-propelled artillery to accompany infantry, cavalry, and tank units and form an integral part of their battle formation. Self-propelled artillery usually fires directly from open positions. Occasionally, it can be used to fire from covered positions as well.

This type of artillery is very effective when combined with cavalry and infantry units, motorized or not. It should be used after the infantry has penetrated deep into the enemy defense. It will destroy open firing positions and pillboxes which hinder the progress of our infantry and cavalry, repulse enemy counterattacks, and fight against tanks and armored cars. Self-propelled artillery can also be attached to tank and mechanized corps. But since these units have tanks with 76-mm guns, only larger caliber self-propelled guns should be used as support.

Mechanized infantry and cavalry employ self-propelled artillery effectively when organizing an independent attack upon an enemy who has come to a halt. But these guns are complicated and expensive, and therefore require considerable protection. Due to their heavy armor, self-propelled guns can be employed with the advanced elements of any type of troops. But the units they support should provide the necessary engineers, traffic guides, and tommy gunners. At night, self-propelled artillery must have infantry protection.

Self-propelled guns should be employed in groups and not singly, since the latter use merely scatters their strength without achieving results. The Germans adhere to the following principles of employing self-propelled artillery. A report on the activities of the 202d Battalion concludes: "An assault gun battalion can apply its power most effectively only when committed as a unit. In an offensive battle it is best to use the entire complement of twenty-two guns in close formation under the direction of the

battalion commander. This should be done in cooperation with infantry regiments, especially the one striking the main blow. If such employment is impossible, as the case may be in the defense, each battery should nevertheless be kept in close order at all times. A platoon is the smallest unit of the battalion to which a separate mission can be assigned. A single gun should never be detached, since by itself it is utterly helpless if damaged. Furthermore, splitting of self-propelled artillery into numerous groups puts a considerable burden on the supply system."

Let us study the employment of self-propelled artillery in an actual engagement. A tank brigade, advancing as part of an infantry division, was ordered to capture certain heights and develop its attack in the direction of point K. The enemy offered violent resistance and tried to check our advance on the second line of defense. When our tanks charged, the brigade was counterattacked on the southwestern slope of a hill by tanks, ten self-propelled guns, and an infantry company.

The counterattacking force had the following battle formation: infantry first, then fifty to a hundred meters behind, the tanks deployed in a line, followed by the self-propelled guns in a wide reverse wedge formation. Tanks of our brigade, supported by two 76-mm gun batteries, met the counterattack with fire from stationary positions. As a result, four self-propelled enemy guns were damaged, while a fifth was captured intact. The rest of the enemy force withdrew.

Self-propelled artillery is the maneuverable reserve of firepower at the disposal of the commanding officer of the entire force, as well as the commander of the tank unit. It should be used in the direction of the main effort. It can be attached to infantry, tank, or cavalry forces. Thus, the commander of a self-propelled artillery unit should be thoroughly familiar with warfare in general and with the peculiarities of each branch of service: its battle formations, rate of advance, and maneuverability.

Self-propelled artillery can execute the following missions. In the offense it can destroy firing positions, tanks, and enemy infantry units which block the advance of our tanks and infantry into the depth of the defenses. It can act in conjunction with assault groups and destroy pillboxes. This is done by the fire of separate guns which have been moved up to within 500 to 1000 meters of the enemy front line. This type of action by self-propelled artillery requires constant protection for the guns and their crews. It can direct massed fire against enemy counterattacks. It can fight hostile tanks and artillery in the depth of the enemy defenses. It can be held in reserve at the commander's disposal and be employed together with other units to widen a breakthrough or exploit a success by penetrating deep into enemy lines.

In an offensive battle waged by infantry and cavalry, self-propelled guns should not be used during

the period of artillery preparation. Their job is to fight in the later stages of the engagement and to contribute to the artillery support and cover for our advancing troops. During the artillery preparation self-propelled guns should be kept with the second echelon troops and reserves, while during the second and third stages of artillery activity they must be kept with infantry and tank battle formations.

On the march some self-propelled guns accompany the security units; these guns are mostly of 76-mm caliber. Most of the artillery moves with the main forces at the head of the column.

In a meeting engagement some self-propelled guns may be employed with the front units which initiate the action. Most of them, however, must remain with the bulk of the forces to participate in the main effort.

Self-propelled artillery can cover the deployment of our troops while they are occupying a new line. In this case it acts with the advance guard and other advanced elements, and anticipates the enemy in opening fire. By sudden and powerful concentrated fire it destroys enemy columns and tanks. As a part of an enveloping force, self-propelled artillery can appear suddenly on the enemy's flanks and rear and direct deadly fire from every angle at enemy formations, artillery, and tanks. It will try to break up the enemy force into isolated groups.

A reserve of self-propelled artillery can be employed to fight enemy tanks and to parry thrusts by enemy units which have penetrated into our flanks and rear.

Some self-propelled guns may be used in ambushes, when the enemy is attacking the front line of our defenses. During the battle for the main defensive zone, self-propelled artillery becomes a part of the counterattacking force and constitutes a mobile antitank reserve. Together with the counterattacking force, self-propelled artillery can cooperate with infantry and tanks and assault enemy units which have penetrated our defenses. It can provide fire support for advanced elements defending our barbed-wire entanglement zone.

It can be employed in tank ambushes along the expected routes of approach of enemy tanks. In this case self-propelled guns serve as emplaced artillery. When it becomes necessary to confuse the enemy, self-propelled artillery may be used in a roving capacity.

Self-propelled guns can cover the withdrawal of our tanks and infantry from the battle area. Such protection is particularly valuable during a fluid defense, when our troops are withdrawing to a new line.

Self-propelled guns can provide support in every type of combat. They must be preserved for use in the main direction of attack and against the main forces of the enemy, rather than scattered on minor

missions. If field artillery can accomplish the mission, then self-propelled guns should not be employed since their mechanism is more complicated and difficult to replace.

A German Account of Changes in the Red Army

[Translated for the Command and General Staff School, Fort Leavenworth, Kansas, from an article by Major Dr. J. Schäfer in *Hamburger Fremdenblatt* 13 July 1943.]

Motorizing the Red Army

THE BOLSHEVIKS recognized at an early date the importance of the motor vehicle for the successful conduct of this war, and correspondingly rushed to completion the project of self-propelled weapons and motor vehicles in their huge armament program. They also tried to utilize quickly the experiences of the Polish and Western campaign. They entered the war with a considerable number of planes, tanks, mobile batteries, tractors, and motorized vehicles of all kinds which they could take from the strongly industrialized "Kolkhoz" (collective farm) system. Since their casualties were very considerable during the first weeks of the war and especially in the great encircling battles of 1941, they made use of everything available to make up their losses in personnel and matériel. In the planning and carrying out of their production program, stress was laid first of all on sending planes, tanks, artillery pieces, and small arms to the front in large quantities. New types of planes were designed and production was increased, and these were supplemented by English and American planes. Since they had several good types of tanks, especially the T-34 (26 tons), mass production could be increased without changes in the large tank factories located farther to the east. The replacement of artillery was stepped up. Back in 1942 the chief of the Soviet General Staff, Marshal Shaposhnikov, who was relieved by Marshal Vasilevsky in April of this year, was primarily responsible for this factor. Enemy artillery was considerably strengthened in this last year, although losses in battle were larger. The enemy has pursued the course of his huge armament plan with its increase of air force, tanks, and artillery to overcome as much as possible the inferior attacking force of his infantry and his great losses of men.

Replacement of Personnel

The replacement of the wounded and the large number of prisoners has caused the enemy considerable difficulties, especially since a great part of the population has been lost. Time and again it has been established that in critical situations they threw into battle whole divisions which were urgently recalled from the Far East, and which had received little or no training, especially during the critical weeks. Able-bodied units were relieved by second line troops of the rear services. The com-

pulsory labor law for women freed numerous defense workers for military service, and because of compulsory military service for women a great many of them are in active service. First they were used mainly in the medical service, but later their scope of service was widened.

Married and single women are now used as ground personnel in the air force, antiaircraft, and searchlight units, as clerks, cooks, drivers, etc., and especially in rear services. Already in 1941 several were entertained in England and the United States as "snipers." Girls who proved their skill as officers of the air force and army enjoy great popularity. For quite some time we have repeatedly found women at the front. Just lately a patrol was captured which consisted of fifteen women armed with rifles and dressed in men's civilian clothing. They are very useful in espionage and for this purpose they cross the lines or are landed by planes behind our own lines.

The New Principles of Leadership

The Moscow General Staff was compelled to re-examine its doctrine of military leadership in the light of the numerous defeats during the first few months of the war.

The gigantic *Kesselschlachten* [encirclements; see "Wedge and Kettle Tactics," the MILITARY REVIEW, July 1942] caused the Russian armies and reserves to disintegrate and to dissipate themselves so much that they were forced to resort exclusively to defensive tactics. The superiority of German leadership, German troops, and German firepower blocked any attempts of enemy counter and flank attacks, as for example, in the Dnieper-Berezina triangle near Rogachev during July 1941. The extraordinarily cold climate with its masses of snow together with the negligible requisites of the hardened Russian soldier and his superior winter equipment aided the Soviet Command considerably during the winter offensive of 1941-42. But the Soviet Army could not overrun and destroy the German front in spite of its efforts and losses, and the enemy offensive lost its force long before reaching its objective.

Certain changes in the conduct of operations could be detected already during Marshal Timoshenko's offensive in the Kharkov area on 12 May 1942. The air force, artillery, the armored and infantry forces were combined in powerful main efforts in order to insure success for their "decisive offensive," as Timoshenko called it in an order of the day. A strong spearhead made possible by the relentless employment of men and matériel was to penetrate, tear apart, and roll up the German front in order to enable the troops of all arms following behind to operate in open terrain. But this attempt failed. The spearhead with its deep and insufficiently protected flanks was hit disastrously by a German counterat-

tack on 17 May. The envelopment of these large enemy forces south of Kharkov differed from the *Keil und Kessel* tactics of the previous year, as the encirclement had to be developed from the defensive against a major offensive of the enemy. "It was intended to penetrate a small front area with an armored fist supported by strong attack aviation to create a *Kessel* and to advance into the empty space." A captured officer thus characterized the tactical and strategic principles which formed the basis for the Kharkov offensive, the relief attack north of Orel in the beginning of June 1942, and the breakthrough attempts on other parts of the central and northern sector of the eastern front. The enemy was able to copy these ideas from us, but their execution met insurmountable difficulties especially among intermediate and junior commanders as well as among the troops.

Although the enemy sought to effect penetrations and encirclement by his spearhead attacks, he nevertheless endeavored to escape any kind of envelopment during our offensive in the southern sector, which started rolling on 28 June 1942. At many points he fought long and tenaciously, but, applying a sort of Kutuzov strategy, he withdrew to the Caucasus and Volga, fighting a delaying action, thereby avoiding the pressure of the German attacks and dangerous encirclements. In connection with this changed strategy it is interesting to note that the Order of Kutuzov was created during those months. With these evasive movements the enemy tried to conserve men and matériel (made necessary by the supply situation) to gather strength for the planned new winter offensive, and for this reason he was willing to incur the loss of valuable terrain. Indeed, a considerable loss of reserves was brought about by powerful, costly, but unsuccessful attacks and breakthrough attempts during the summer, autumn, and winter months. But the enemy was willing to incur such serious losses because he wanted to be successful in his sectors, failing, however to tie down German forces and thereby to effect relief of the southern sector. It is still not possible to state today where the enemy intended his main effort during the winter offensive of 1942-43 because we are not familiar with his original plans or any changes made as a result of combat developments. According to one captured enemy officer it was a somewhat altered Brusilov strategy which the Moscow General Staff wanted to apply: to smash the German front in several places and to annihilate them by pincer-like envelopments. Accordingly the various primary and secondary efforts in the various sectors would not initiate action simultaneously, but would occupy the enemy at several places and force him to bring his reserves to the individually threatened areas; and this was to be followed by decisive thrusts. The course of events during last year's winter offensive supports the assumption that the operational phase

may have been influenced by this strategic concept.

New Weapon Tactics and Reorganizations

In addition to the various changes in strategy and tactics, the Red Army also introduced remarkable modifications in the manner of employment of various weapons.

Experience and thorough study gave birth to these new ideas of greater effectiveness through changed employment and improved coordination. Of course, tactics vary with the situation, and the course of action is determined by the mission, strength of own and enemy forces, terrain, and the enemy's type of defense. Organization and missions of the various arms and services provide considerations which must also be taken into account when choosing a tactical course of action. Whether armored units should accomplish an operative mission alone or whether they should execute it in collaboration with infantry divisions is, indeed, an important question.

Armored and Mechanized Troops

During June 1942 the armored units of the Red Army were reinforced by mechanized brigades and corps which were to take over the functions of cavalry units, a task which the armored units could not assume as a result of their organization. The organization and equipment of these mechanized brigades provided them with great speed, mobility, and firepower. Such a brigade is fully motorized, has forty to fifty medium and light tanks and three rifle battalions with light and heavy infantry weapons, as well as antitank and antiaircraft weapons, artillery, etc.

What does the enemy expect of these mobile troops? He believed that heretofore he lacked the necessary mobile units with appropriate firepower for the successful operative exploitation of breakthroughs and penetrations, which he was able to effect on several occasions without being able to take advantage of them. Armored units were too unwieldy, cavalry corps and ski troops (the latter in wintertime) proved too slow and were too weak in firepower.

After the armored troops and the infantry opened the way through the fortified positions, these mechanized forces were to thrust deep into enemy territory, quickly occupy important points such as bridges, narrow passes, crossroads, etc., take up the pursuit of the enemy, cut him off from his services, and if possible encircle him. In delaying actions they were to protect the retreating troops and in defensive situations they were to act as an extremely mobile reserve for the blocking or mopping up of enemy breakthroughs.

In a specific order, Stalin clearly defined the employment of armored and mechanized units: separate armored regiments and brigades were to reinforce the infantry and collaborate closely with its units during attack and defense. The main mission

of the armored corps was to be the further exploitation of success in the direction of the main effort by the annihilation of the enemy's infantry. Strong armored forces were to be employed to gain operative objectives, especially during the last phase of the winter offensive 1942-43 in the southern sector. But they finally failed due to the tenacious German defense and a courageous counteroffensive. The execution of the missions assigned to mechanized forces is not as easy as it was during the battle of encirclement south of Belyi (December 1942): the Russians had attained a partial success and intended to drive armored and infantry units as well as the 1st Mechanized Corps through the gap, but combat teams of their corps were not able to reach their objective, a distant German supply road, because the brave German defense and surprising counterattacks stopped the enemy, enveloped, and annihilated him.

Existing intentions to continue the motorization of the Red Army will meet considerable difficulties of production—the uniform and rigid coordination of all motor transport officers, as ordered last January [1943], has as its purpose to consolidate all motor units and make them available for military use, especially for the transport of troops and matériel.

Auxiliary and Air Force

During peacetime the heavy artillery was largely allotted and attached to corps and division. During 1942 through the influence of Marshal Shaposhnikov the reinforced heavy artillery was more rigidly concentrated and allotted to armies. Similarly, artillery and antitank divisions were formed, permitting the employment of these troops in mobile concentrated units.

Also, the number of airplanes and anti-aircraft guns was considerably increased. Experience gained through heavy losses provided lessons for the concentration and employment of fighters, bombers, attack, and reconnaissance planes. Deliveries of English and American planes constituted another contributing factor for this improvement.

Close Cooperation With the Guerrillas

Typical of the eastern campaign is the close cooperation of the Red Army with the non-military guerrillas behind the German front. The operations of these guerrilla bands are being directed by the "Moscow Control Staff for the Guerrilla Movement," although they are not regular troops and are supplied with all necessities by air (weapons, gasoline, ammunition, equipment, etc.). According to rumors, Stalin was to have directed that they be equipped with the Red Army uniforms to create the impression of regular troops.

Only the most important changes within the Red Army during the last two years have been discussed here. They indicate that the Soviets have learned a great deal, and will do everything, ma-

terially, psychologically, and politically, to increase the combat strength and power of resistance of the Red Army.

Pursuit

[Translated at the Command and General Staff School, Fort Leavenworth, Kansas, from a Russian article by Colonel G. Andriyuk, Soviet Army, in *Krasnaya Zvezda* 11 August 1943.]

WITH THE present organization of the defense in depth, pursuit begun at the moment when the enemy is beaten off from the forward edge and is retreating cannot proceed evenly. Pursuit is inescapably bound up with the necessity of taking a number of intermediate positions which the enemy strives to hold with his main forces, rear guards, or reserves.

The advance of our troops in the region southwest of Orel clearly reveals the tactics of the enemy in retreat, and those methods by means of which he tries to delay the movement of the advance guards and main forces of our attacking units. These tactics are dictated by the fact that the German concentration is placed under pressure from three sides. Efforts of the enemy consist in holding at any cost the flanks at the base of the former Orel salient, withdrawing the main forces of his concentration from under our attack. As to the methods of counteraction, these are broad and quite varied.

The basic method to which the Germans most often have recourse is the creation of a screen of fire in intermediate positions. Here is emplaced a considerable quantity of mortar batteries and medium-caliber antitank and field artillery. The position is also densely occupied by automatic weapons elements. Infantry cover is limited; tanks are seldom used. Everything is organized in dependence on a fire screen, predominantly by mortars and automatic weapons.

To break up such a fire curtain requires moving up artillery and putting tanks into action—in other words, organizing an action resembling a breakthrough of defense. As a result, the enemy may gain time and retire with his main forces. For this reason one of the main problems of the pursuing troops consists in not giving the enemy a chance to establish his intermediate positions firmly, to organize a system of fire in those positions, to mine roads and approaches to populated places, to blow up bridges behind him, to cover river crossings with fire. This problem is solved by decision, speed, and continuity in the pursuit.

It is impossible to carry on pursuit by infantry alone, without organizing mobile shock groups on the flanks or at places where the greatest success is achieved. Experience shows that it is necessary to develop success with mobile elements in greatest possible depth, and to break down resistance decisively where the enemy succeeds in organizing it.

Tanks and small units of tommy gunners on motor vehicles, sent out as advance guard, successfully catch up with the retreating enemy, interfere with the organization of his withdrawal, and disrupt his preparations for defense in intermediate positions. Our aviation executes the same task. It is necessary to consider only the peculiar features of the action of air elements when the battle is fluid.

In pursuit, a certain decentralization of the air command is necessary with the attachment of some elements of attack and fighter planes drawn from large units of all arms. Otherwise a break between ground and air actions arises as to time, and sometimes as to mission. But nowhere is agreement as to time and place of such great importance as in pursuit.

The enemy often commits large groups of aircraft to act against the open combat formations of our pursuing troops and to stop their movement. As a result of this, air protection for pursuit plays a leading role. To realize it successfully, the closest cooperation and the availability of aviation to the commander of the unit of combined arms are essential.

As to infantry, the important thing in pursuit is speed and decisiveness of action against intermediate enemy positions. Speed is attained by the skilful leadership of troops. He is a poor commander who, not knowing the strength or intention of the enemy, nor the composition and disposition of his rear guards, exhausts his troops needlessly by movement in deployed formation. At the same time it would be unwise to form large columns for marches. When withdrawing, the enemy makes extensive use of road mines, booby traps, and other obstacles. Under these conditions broken formations are better, with movement by small groups, inconspicuous to hostile aviation and suitable for deployment in battle. However, great skill is demanded of the commander in order that he does not dissipate his units, but keeps control of them. The infantry's speed of movement depends also on the presence of a sufficient quantity of clearing and repair detachments. Sappers must advance ahead, clear the way, and restore bridges and crossings.

But no matter how energetically the infantry advances, whatever the exertion of its strength, its possibilities are limited because operations develop so rapidly. Infantry can make up this deficiency through the creation of sufficiently mobile advance guards. One or two companies of tommy gunners in vehicles can overtake the enemy, cut off his road, press on the flank, or simply start fighting to hold the enemy until the approach of the friendly main forces. The motorized advance guard of one of our divisions, by active operations, three times forced the Germans to deploy for battle in positions unsuitable for them, and the Germans overtaken by the division suffered serious losses.

Practice shows that mobile infantry advance guards must be sufficiently strong not only to start fighting but also to impose their will on the enemy. This is especially important if the advance guard catches the Germans in an intermediate position at the moment when they are organizing defense.

Success of pursuit is conditioned for infantry, and especially for mobile agents, by extensive use of the tactics of maneuver. Linear tactics with their uniform distribution of forces along a front are absolutely unsuitable under present conditions, for it is then only possible to push the enemy out of position but not to break up his forces, surround them, and defeat them in detail. Pursuit must include the regrouping of troops, the dispatching of mobile groups on the enemy's routes of retreat, infiltration into his combat formations, etc. Activity, initiative, flexibility of maneuver, extreme exertion of effort, these are essential factors in pursuit.

Since the Germans often make use of the night for retirement, it is essential to carry out night pursuit. Not long ago an infantry unit discovered in the middle of the night that the enemy had begun a retreat. The unit was at once organized for pursuit. Following close on the enemy's heels and inflicting losses on him with artillery and mortar fire, our infantry advanced more than ten kilometers during the second half of the night and on the heels of the Germans broke into a populated place which was to serve the enemy as an intermediate position of resistance. The commander of the Soviet infantry unit began the pursuit independently, without awaiting orders, and he acted correctly, for delay in such cases is tantamount to failure. Tanks play a great role in these night actions. They are quite well adapted for combat work at night, and tank ambushes on the enemy's routes of retreat cause him considerable losses.

The organization of night pursuit is a complex matter. As a rule it cannot be carried out by the troops attacking by day. In the course of the long summer day, units conducting pursuit tire greatly and need rest. Therefore, night actions are best performed by elements especially designated for this purpose. Experience shows that night pursuit skilfully executed usually causes the destruction of retreating enemy units.

The last thing to be mentioned in connection with the subject of pursuit is the consolidation of the seized terrain. The fact is that when the retiring enemy does not counterattack, some commanders of attacking units forget the necessity of consolidating what they take, and embarrassment often results. With his first counterattack the enemy recaptures advantageous positions.

In attack, always be ready for defense—that is the law of the pursuer, developed by the experience of rapid and very mobile fighting.

War in the Dark Over Germany

[Translated at the Command and General Staff School, Fort Leavenworth, Kansas, from a German article by War Reporter Erwin Kirchhof in *Das Reich*, Berlin, Germany, 19 December 1943.]

THE COMMANDER of the British Bomber Command has changed his tactics in the attacks on the Reich.

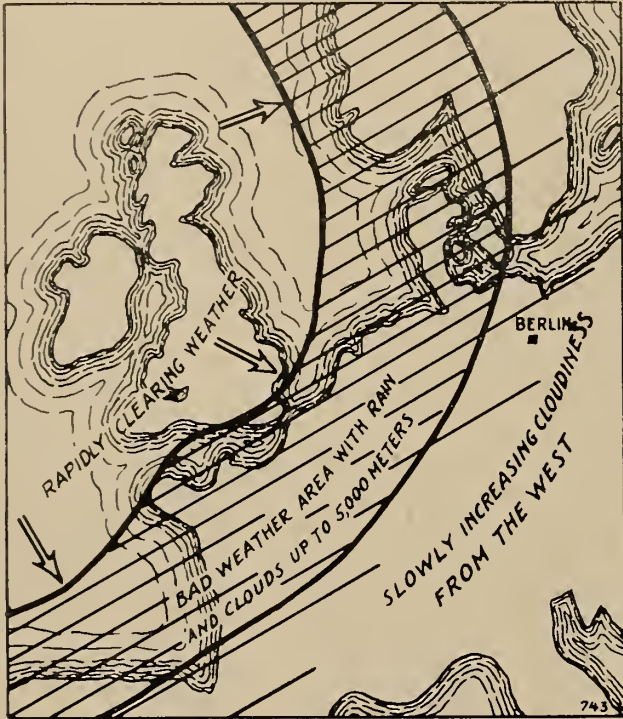


FIGURE 1.

Instead of bright moonlight nights with few clouds he has chosen dark nights with great masses of clouds in the shelter of which he has been hoping to stop the decimating of his bombing formations. Since the weather is determined preponderantly in the west (it begins in the area about Iceland, originating in the meeting of the cold masses of polar air with the warm masses of air off the ocean) and

flows toward the Reich region across the British Isles, the enemy has been able to estimate when the bad-weather zone would cover the German area with land rains and total cloudiness [Figure 1]. He takes advantage of the subsequent clearing weather over the British Isles, which brings only isolated showers with it and leads mostly to cloudless nights, especially in England. From their fog-free fields the groups of British bombers rise, climb to great heights, and fly off across the bad-weather area to Germany.

On the first night of these new British bad-weather tactics, the work of the German night pursuit squadrons was rendered considerably more difficult. Fog and layers of total cloudiness hung low over many of their points of departure, but a few nights later (the weather situation in general was unchanged) larger formations of our night fighters destroyed over fifty of the enemy's bombers within the space of a few hours. The new British tactics had encountered a most versatile system of defense.

The British Air Marshal, who on the basis of his first successes held fast to his bad-weather tactics and even added a few surprises, had looked forward to further cheap successes. From their line of departure over the North Sea [see Figure 2], the British terror planes drew close together. In the lead flew long-range night pursuit planes. As they passed over the coast of Holland the stream of bombers formed themselves into four waves which headed for Cologne at varying heights of between 5,000 and 8,000 meters. Squadrons of long-range night pursuit planes flew both above and below the bomber formations and, in addition, secured their flanks. Each of the four waves was guided by "pathfinders," those few crews who are thoroughly trained in navigation, and whose task it is to guide the mass of the bombers to their targets with chronological precision. The pathfinders may be regarded as the none-too-numerous remnants of the surviving British

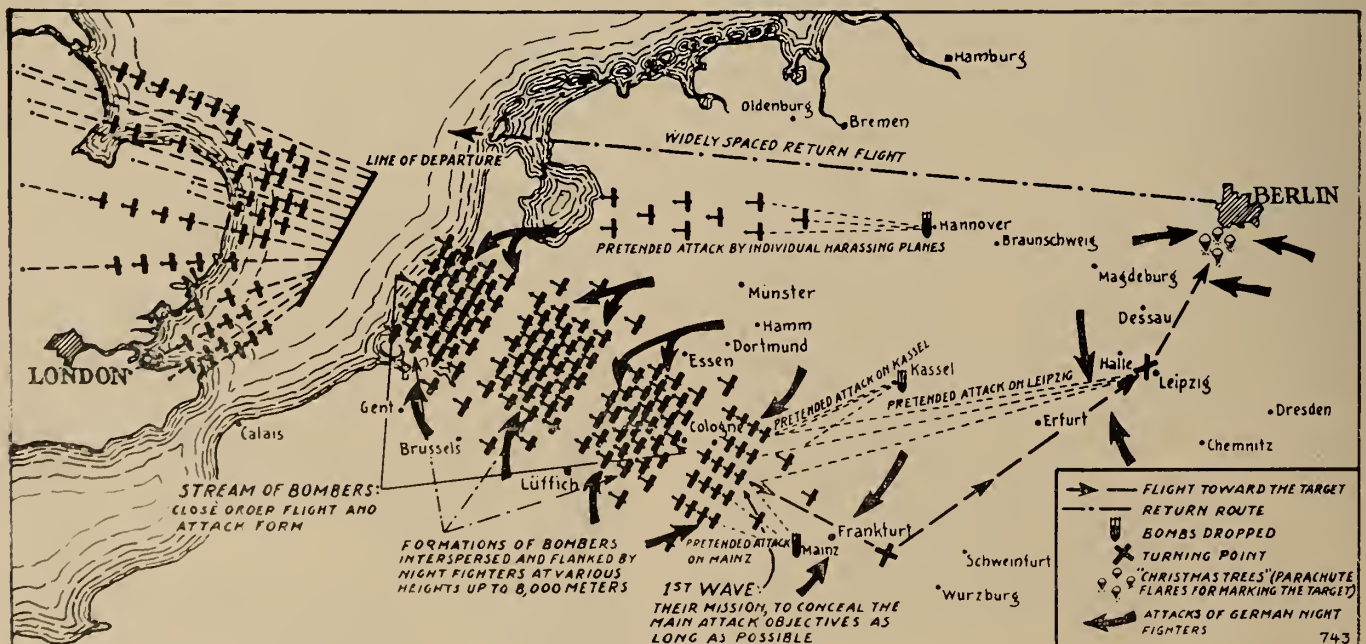


FIGURE 2.

bomber groups who at the beginning of the present year [1943] flew into Germany in widely spaced formations and found and attacked their targets.

The commander of the defense operations over the Reich region, a commanding general who works in closest cooperation with the *Reichsmarschall* [Göring] in the perfection of air defense, had recognized for a long time that the enemy had switched over to the habit of attacking in close formation. As had so often been the case during recent months, the British intended to plunge through to their object as quickly as possible, drop their loads of bombs, and fly back again. They thought that in this way they could prevent the German air defense from having sufficient time for concentrating strong forces of night pursuit planes in their path. But the general was neither to be tricked nor surprised. With sufficient anticipation his order went out to the night pursuit squadrons distributed over numerous air-dromes, and while he directed a few groups to the coast for a running combat with the enemy, his collaborators—general staff officers who had been tried and tested at the front, scientists and engineers—prepared for the defense battle.

On the outline map at this command post of night pursuit, there unfolds line by line a clear picture of the enemy's progress. The operations officer, master of a highly developed communications technique with a thousand details at which in the future the world will wonder, receives written and oral messages, one after the other. He reads each one and listens to all. His eyes repeatedly seek locations on the map. Between times he notes the hurried reports concerning location, course, speed, and altitude of the enemy formations, and concerning trick maneuvers. Calmly putting his plans into action, he communicates the enemy situation of the moment to the commanding general, adding his own ideas of attack possibilities.

The man who has to make the decision stands deliberating before the map, stirred by the decisive question of this night. Where are they really going to attack? Where will we be able to meet the enemy with the strongest forces before he can drop his load of bombs? During these moments, the chief of his staff becomes the general's principal adviser. What he himself has learned on a hundred dark nights of fighting is now put to use. In his decision, the general thinks as a soldier and also as a statesman. It is not only the symbols on the map that help him to find the answer, but also the consideration of which place it must be of interest to the enemy from the political point of view to terrorize at just this moment.

The enemy bomber formations had flown over the Rhine south of Cologne when the air alarm was given in the Mainz and Kassel areas [see Figure 2]. Questions and reports succeeded one another at the table of the operations officer. This time the riddle was soon solved. It was a trick maneuver. The first wave of the enemy had divided itself into three

groups in order to conceal the main target. One group turned off in a feigned attack on Kassel, the second rushed on toward Mainz, and the third flew in the direction of Leipzig. The main body of the bombers continued on their course. At the same time an invasion of planes was reported from the coast of Holland, but these British aircraft were soon recognized as harassing planes whose mission obviously was to conceal still more the real attack objective.

The right hand of the operations officer moves to the triple telephone switch. In a flash, hundreds of kilometers are bridged. Final questions are asked of the division generals; then comes the decisive command of the commanding general: "To all 'cranes,' fly to Paul, to all. . . ."

The squadrons at Frankfurt, high above the heavy rain clouds, catch this message and start on their way across the magic chess board of the heavens for the first move in the defense battle. In pursuit planes with which the enemy has not yet become acquainted, provided with the most modern equipment, piloted by commanders who, like Lent, Streib, and Maurer, have shot down from forty to fifty and more planes at night, they roar on their way toward the enemy bombers.

The losses of the attackers grow. The stream of bombers passes Frankfurt, bends to the northeast, and flies directly toward Leipzig. The general is not surprised. His intuition, which is what the English mean when they speak of the "capable hands" that are directing the German air defense, has scored again.

In the second phase of the battle the British Air Marshal introduces additional surprises. An English radio operator gives false orders to German night fliers. British machines busily throw down strips of tinfoil and scatter false target-marking flares. Little affected by this, other German squadrons continue the fighting in the area around Leipzig. The "cat eyes," as the British call our night fighters, also handle the situation here with all the difficulties of bad weather, the dark night, and the British maneuver. A few of them have particularly good luck. They are afforded the opportunity for rushing in at lightning speed and shooting the enemy down above so-called "bed sheets"—clouds on which searchlights are turned in order to light them up. Others are forced to approach to within very close range of the dark shadows which suddenly appear and disappear, in order to reach them with deadly bursts of fire. It requires enormous concentration before the enemy is found, for in spite of the best of searching apparatus, in the darkness of the night the fighter first has to have the outline of the enemy clearly before him before he is able to destroy him.

The battle rises to its climax. It is certain now that Berlin is the enemy's attack objective. We have seen through the tactics of the British Air Marshal. While yet in the forefield of Berlin, the German general throws strong forces of night pursuit planes against

the enemy. Over the Berlin area, which is free of clouds, one of the greatest and hardest fought night air battles of this war develops. Together with anti-aircraft artillery and searchlights, the divisions of night fighters break into the stream of bombers whose point, with the target markers, is broken up before the big attack can be effected, and this time the different waves do not succeed in unrolling their bomb carpet. Two examples of single combat: A German fighter is heading directly for a Lancaster that is caught in the beam of a searchlight when he sees incendiary bombs fall onto the enemy plane from a bomber that is flying above it. The enemy plane is put out of action by its comrade. The German jerks his plane around, rises, and shoots down the Britisher who was flying higher up. In the case of another pursuit plane, the plane's weapons are knocked out by enemy fire just at the moment when it is in a favorable position in front of a Britisher. The German pilot has a brief word with the radio operator who sits back to back with him. The plane at which he has been firing must not get away. The pilot now maneuvers his machine in front of the bomber in such a way that the radio operator is able to bring down the Britisher with his machine gun.

On the return trip of the bomber formations it is clearly recognizable how hard they have been hit. In widely spaced formation with many damaged planes limping along, it becomes a retreat. And the battle continues clear to the coast. During the afternoon of the following day, the salvage detachments find the remains of over sixty bombers, most of them four-motored.

Destruction of Pillboxes by Sapper Assault Groups

[Translated for the Command and General Staff School, Fort Leavenworth, Kansas, from a Russian article by Captain S. Rubchinskii, Soviet Army, in the *Voyenno-Inzhenernyi Zhurnal* (Military Engineering Journal) February-March 1943.]

AT PRESENT, enemy defensive zones have powerful fortifications in the form of strongpoints with a network of pillboxes (connected, and protecting each other by fire), numerous obstacles, and minefields.

Experience shows that assault groups can break through such a defense zone successfully.

On the basis of the activity of assault groups in one of the front sectors, some conclusions can be drawn concerning their organization and the nature of their operations.

An assault group should be composed of infantry, tanks, sappers, and artillery guns.

The group is divided into two sections, with a total number of men varying from a platoon to a company. The first is the *covering section*, which occupies advanced positions and directs destructive fire at firing positions protecting the approaches to the pillbox. The second is the *assault section*.

The *covering section* is composed of two sub-machine-gun squads, three machine guns, and two rocket-signal men. In addition, one or two guns (firing by direct laying on the objective) and support tanks may be attached to this section. Besides, the support section is armed with individual weapons and hand grenades.

The *assault section* is composed of the following:

1. A *demolition squad* of six to eight men. Each man has, in a special knapsack or bag, separate charges of explosives weighing ten kilograms, two fuzes, and two or three sacks of sawdust.

2. A *security squad*, composed of from four to six men, is equipped with two rifle mine detectors, Bickford cord, six dynamite sticks with fuzes, and two pairs of wire-cutters. From two to four chemical warfare men are supplied with four to eight incendiary bottles and four to eight smoke hand grenades.

3. A *transport squad* of eight to ten men. Each two men are allotted two boxes of explosives (100 kilograms).

4. A *reserve squad* of six to ten men. Weapons and equipment are similar to those of the demolition squad.

The successful destruction of a pillbox depends on thorough planning, cooperation, careful preparation of signals, and the availability of fire and technical means.

Reconnaissance precedes the attack. Sappers participating in infantry reconnaissance should identify the type of anti-personnel and antitank obstacles (mines, booby-traps, barbed wire), discover passages, determine dead spaces not covered by the fire of the pillbox, and note the entrance and exit of the pillbox as well as the location, number, and types of embrasures. Sappers assigned to clear approaches to the designated pillbox use mine detectors, probing tools, rubber-covered wire cutters, high explosives, and camouflage suits.

The prober employed for detecting minefields can be made either entirely of metal (one and a half to two meters long) or of wood with a pointed metallic end (length, forty to fifty centimeters; diameter, ten to twelve centimeters).

The second phase of the operation is the actual assault on the pillbox. Under protection of artillery, mortar, and machine-gun fire, the assault section starts moving from its line of departure to the nearest obstacles. It advances by short rushes. When the security squad of the assault section reaches the first obstacles, the chemical warfare men throw smoke hand grenades at these barriers. At the same time the sappers assigned to clear the mines blow up the obstacles and form passages for the assault shock section.

Under cover of a smoke screen, hand grenades, and sub-machine-gun fire, the section moves forward, overcoming the obstacles and utilizing shell craters. When the men come within grenade-throw-

ing distance of the firing position, they toss grenades and incendiary bottles at the embrasures. When very close to the pillbox, they throw sawdust bags on the embrasures and employ flame-throwers. Explosives are placed either in the embrasures, in the entrance, or between the embrasures, and then the pillbox is blown up. If the pillbox has a stovepipe, a periscope, or an opening for ventilation, grenades should also be thrown through them. Gasoline also may be used in such cases. When gasoline vapor fills the pillbox, hand grenades are thrown in.

The support section also moves up to cover the attack. In case of an emergency or of an enemy counterattack, it engages the enemy and then proceeds to help the sappers in their work.

The attached artillery covers and supports the operations of the assault section by destroying and neutralizing adjacent firing positions which hinder the advance of the sappers. In addition to the equipment enumerated above, assault detachments should have at their disposal special carts for transportation of explosives, grappling irons for clearing mine-fields, and special explosive charges for blasting passages in wire entanglements.

All this equipment (ammunition carts, grappling irons, probing tools, knapsacks, etc.) are so simple that they can be made by the sappers themselves.

The above method of destroying a pillbox by a sapper assault detachment should not be considered as standard. Each attack should be planned on the basis of the particular situation.

Hints to Young Officers

[An article by "Onlooker" in *The Fighting Forces* (Great Britain) October 1943.]

SINCE THE outbreak of the war civilians by the millions have had to be turned into soldiers trained in soldierly qualities. Civilians by the tens of thousand also have had to be turned into officers trained to lead. Whether the soldier is able to give of his best depends on the officer who has to train and lead him. The quick transformation of a peaceable civilian into an efficient officer involves a far greater change than is generally realized either by the public or by the young officer himself on receiving the King's commission. According to Napoleon, "there are no bad regiments, there are only bad officers." It has been said that twenty-five percent of any average unit is composed of such good material that they hardly require leaders at all, twenty-five percent is and will remain poor, but the remaining fifty percent can be made every bit as good as the best by good leadership. History has recorded over and over again that it is the quality of the officers that determines the quality of the men. Accordingly, the importance of the proper selection and training of officers in an army can never be overemphasized.

How can a peaceful civilian, who is just an average educated citizen and unaccustomed to handling men, quickly acquire power to lead men into the face of fire or hold them against boredom and disappointment? What are the requirements of leadership? The main essential would appear to be an ability to make others follow you and to think and do as you want them to. The important word is "follow." What, then, will make men follow you? I suggest the following as the two essentials of leadership, and that both are necessary, and that one is not sufficient without the other:

1. The confidence of your superior knowledge and proved judgment—i.e., a quality of brain; and
2. The affection or respect of your men, based on your friendliness for them—i.e., a quality of character or heart.

People are inclined to talk about "born leaders," as if leaders could not be made or trained. I suggest that anyone possessing the above two qualities can acquire powers of leadership if he is sufficiently anxious to do so. The process is not so difficult to understand as tedious and arduous to put into practice. There is no short cut. It is fatal to imagine oneself a leader or "born leader." Somehow, people who consider themselves leaders always have a higher opinion of their qualities than others have. Never become self-satisfied.

1. Qualities of Brain.

Knowledge is power. Knowledge makes the shy man confident. It goes without saying that an officer should know his job—not superficially, but thoroughly. First of all, it is necessary to be efficient.

(a) *Acquire knowledge*—from books, from teachers, from conversation with others, and from your own experience. Jot down the lessons or principles learned from your everyday experiences. Memory usually needs aiding, and it is probable that similar experiences will befall you later. A lot more wisdom can be acquired in "off the record" conversations with others than is usually imagined. If you can benefit from experiences of others you have a double advantage. It has been said that the British Army has the best textbooks in the world and makes least use of them. The main teacher will always be yourself. The amount of knowledge one acquires depends on one's thirst for it more than the actual facilities at hand. Nor is knowledge static. We should continually be adding to our store by self-education. We can always be a little more efficient than we are, and should be fitting ourselves for higher responsibility, which may befall us when we least expect it.

Develop a good word of command on the parade ground. Cultivate the accomplishments of giving verbal orders. Orders and directions should always be given crisply, succinctly, and lucidly. Never think aloud when giving directions. Make up your mind

exactly what you are going to say before speaking. You won't gain confidence or respect if you hesitate or cloud your meaning with unnecessary words. Nothing inspires confidence in your men more than the ability to tell them *exactly* what to do in the fewest words possible. They then feel you know your own mind and know what you are talking about.

(b) *Think deeply.* Have views and opinions on training which are the product of your thought. Lord Wolseley said: "A certain amount of reading and a certain amount of study is absolutely necessary for any man who ever wishes to command troops in the field, and the great thing is to read a little and think a great deal—and think it over and over again." The more one thinks about a subject the clearer it becomes, till the principles emerge crystal clear in the mind. Having conviction, you become master of your subject. All officers should have a mind sufficiently well stocked and clear to be able to give impromptu "off the record" talks to their men on some subjects of military or general importance at a moment's notice. With prior reflection and study, imparting your views will come like second nature. Without it you will have nothing to impart but parrot talk. Sir Charles Napier said the same thing in these pithy words: "A man cannot learn his profession without constant study. When in a post of responsibility he has no time to read, and if he comes to such a post with an empty skull it is then too late to fill it." In war an officer quickly finds himself in a post of responsibility without having had time for much prior study. If he realizes the necessity for it he can do much to help himself as opportunity arises. It is at the beginning of his career that he must develop that habit.

(c) *Impart your knowledge.* Your men cannot study as you can, so put the result of your learning into practice. While instructing, or supervising instruction, show quietly that you have a sound knowledge of your weapons, drill, and tactics. Don't give wrong orders. In this way, your men will acquire confidence in your superior knowledge. Continually be thinking up training schemes and ideas for improving the efficiency of your men and the lessons you want to bring out, so that should an opportunity occur (as it often does when least expected) you have the scheme all ready to lay on at short notice. Make your NCO's and men feel that they are really learning each day some fresh lesson under your instruction. Men like to feel that their latent intelligence is being drawn out. Sometimes they surprise themselves at the progress they are achieving and are duly grateful. There is no better stimulus to interest or antidote to boredom than the zest of interesting and realistic training. There are so many things for a soldier to learn about warfare. Just as knowledge gives *you* self-confidence, so does knowledge produce self-confidence in the men themselves, and self-confidence in themselves and their weapons

produces morale and courage in the face of the enemy. To provide a full day's training of, say, five hours for your men, it is, however, necessary for the junior officer to work ten hours. If your ideas flag, turn to the manuals, training memoranda, and pamphlets, or discuss ideas with others and use your imagination; but it is up to you to give your men full measure of useful training in an interesting way. Short talks to your men can "put across" what you want to say more effectively than boring them with a set lecture; they get to know your outlook and views, and are enabled more easily to carry out your wishes. Don't be ashamed to show them your character. You and your men form a team, and the team should all know each other intimately. Always remember that "the private soldier is the measure of the officer's worth," and that it is your job to bring out the worth that is in them.

It is your *brain* you depend on, and it is your brain that your *men* have to depend on, too. Be forever sharpening and cudgelling it. Never let it get blunt or fuddled.

2. Qualities of Character or Heart.

To achieve leadership, the writer believes it necessary to acquire the liking, or at least the respect, of one's men. It is difficult to explain why. A gunner of Napoleon's Imperial Guard wrote to his commanding officer after the Peninsular War: "The main thing, say I, is to make oneself liked by the soldier, because if the Colonel is disliked no one is extra keen to get himself killed by the order of someone he detests. You were severe certainly, but just, no word louder than the other; no cursing or flying into a temper; in short, you used to speak to a soldier as if he had been *your* equal. There are officers who speak to soldiers as if they were equals of the *soldiers*, but that is no good at all, is what I say."

(a) Here again the first requirement is knowledge. Men are the raw materials of your trade, and you must have knowledge of them. Get to know your men and know them intimately; know their separate voices, their characters, temperaments, and weaknesses. The more you know how each will react to varying trials and situations the easier it is to handle them. It is admittedly difficult for the ordinary junior officer to acquire this depth of information, except on active operations. On parade, one does not get to know one's men's characters, and off parade one hesitates to intrude into their preserves. Also there are so many calls on an officer's time that, unless he deliberately sets out to make the opportunities for himself, he will seldom acquire the necessary knowledge.

Probably the quickest way to get to know men is through sport. One gets a surprisingly different view of them on the football field, and they may get just as surprisingly different a view of you. They also think a lot of an officer who joins in their games. Games are democratic. If you join in, you

cannot stand on your dignity, and they consider it sporting of you to meet them on equal terms. If you don't play yourself, they do appreciate it if they see you voluntarily giving up your leisure to help organize their recreation. If you talk with them about their sport and their teams they will like it. It shows interest and friendliness, and gives you an opportunity to cultivate your men's sporting instinct, team work, and the spirit of playing the game.

It is a good habit to keep a book with the names and addresses of all your men, their occupations (some have more than one occupation or trade), families, and accomplishments. Let your men see from time to time that you are aware of their circumstances, and ask after their families.

You can make an excuse to visit the men's quarters occasionally, and after attending to the matter in hand you can stay to chat on any current topic and give them an opportunity of raising anything in their mind, but beware of overstaying your welcome. Your men cannot approach you informally. Only *you* can lower the barrier, and you should take opportunities to do so. Men on duty in the silent watches of the night are usually lonely and willing and anxious to talk about subjects in a friendly and intimate way, which they would not normally do in day time. Informal chats form a safety valve. If you can maintain your dignity and their respect without insisting on your prerogatives, the democratic British soldier will afford you voluntarily the position which otherwise you could only enforce compulsorily. Your position will be enormously strengthened. When your men see or feel that you are sympathetic, you will obtain their confidence and they will come to you with their problems. Unless they feel that you are sympathetic they will be reserved. Men are usually disinclined to make complaints in the normal manner and usually prefer to suffer in silence until some act occurs requiring disciplinary action. This ought not to occur if the officer is keeping his pulse on the temper and feeling among his men. It is the essence of discipline to prevent trouble arising, rather than to deal with it after it has arisen. Men want some visible protection from a rigid, soulless system. You should provide this. Unless you have a genuine interest in your men it will be difficult to think of and perform all the many services required of an officer for his men.

(b) Get under the skin of men who have had punishment by seeking them out and showing them after they have finished their sentence that there is no ill-feeling. The unexpectedness of it may make him a friend for life. It is also sometimes effective after having firmly administered a just reprimand to detain the man and in a completely altered tone speak encouragingly or sympathetically and inquire privately into the deeper causes which you may believe lie behind the trouble. Sympathy and encour-

agement where least expected have often most effect. Know whom you can rely on to give you an unbiased opinion or a true account of the feelings of those under your command, probably someone to whom you have done a good turn in the past. Remember that the way to a man's heart is often through his stomach. Pay particular attention to feeding and the service of meals. Cooks can do a tremendous amount for morale, but they require to be constantly stimulated and encouraged in their efforts. While a messing officer or an orderly officer may have executive responsibility, this does not absolve your indirect responsibility for your own men's feeding. You can always find out from your servant what he thinks of the food and conditions generally.

(c) Remember the force of example. You are always in the limelight to your men. They talk about you and compare you with others. The eye takes in more lasting impressions than the ear. These impressions bear the stamp of genuineness. You will have more influence (for good or bad) on your men than you imagine, and you will hardly ever know how or by what means. Casual remarks and little actions that you would never think of or remember are often the most revealing and influential. Never play to the gallery. The sure way to lose popularity is to seek it. If you are ever in doubt as to comportment in personal matters, ask yourself whether it would be permitted to your men, and if it would not be allowed for them do not do so yourself. If your men are parading without greatcoats do not wear one yourself. It is distasteful to see officers coming on parade with a swagger cane if their men are wearing battle order and steel helmet. Be punctilious to return equally as smart and regimental a salute as you receive. Always share your men's restrictions, and submit yourself voluntarily as far as possible to the same rules that are laid down for them.

(d) Make a point—almost a *show*—of always attending to your men's interest before your own. This attention to their interests can't help spreading among your men, who quickly notice these things. An officer need not, and ought not, to "fuss" over his men. They do not want a governess, but you do stand *in loco parentis*, and it is possible to guide and help them without fussing. Similarly, "pampering" men implies lack of self-reliance. On the contrary, an officer *must* foster self-reliance. Looking after men by no means implies allowing them to do what they want, or "spoiling" them. It is often necessary to be hard, and force them to do what they dislike. For example, after your platoon has finished its work it may be good to make them, even though tired, help a neighboring platoon. It is vitally necessary to teach them unselfishness, and make them accustomed to cooperate willingly with and help others. They won't like it at the time, but they will feel good after they

have done it. Make them give you the little bit extra after a tiring day. Eventually you will have to lead these men in the face of the enemy when a lot extra will be required. Obedience to pleasant or routine orders is easy. It is obedience to unpleasant orders that is a test both of the discipline and of the leader. Your men deserve far better treatment than to be allowed to do as they like, but always remember that the more you ask of your men the more must you see to their comfort and welfare. A good officer will ask a lot *from* his men, at the same time doing a lot *for* them. The two go together. You cannot ask without giving, and you ought to give before asking. If the men remember the times you have gone out of your way to help them in the past and how you always put their interests before your own, you have made them your debtors, and your appeal has more authority and force, because few men like not to repay debts of this kind. All this business of looking after your men is not all altruism. It is hard, common sense, and the basis of discipline. An Irish sergeant-major once told the writer: "You want to pat 'em on the back with one hand, sir, and kick 'em hard in the pants with the other."

(e) In peace time, a young subaltern on being posted to a regiment very soon had any false notions of dignity or self-importance knocked out of his head. His colonel and brother-officers saw to it that he was made to realize his place, and that whilst in command of men yet his main duty was to serve them. In one sense, officers and NCO's are the servants of the men. An officer must discipline himself to take reprimands without resentment, to undertake menial tasks pleasantly and cheerfully, and to work with and under others he may dislike. An officer without self-control and self-discipline himself cannot, and does not deserve to, control and discipline others. Sir John Moore of Corunna proved to be one of the most successful trainers of fighting soldiers the British Army has ever known. On joining one of Sir John Moore's light regiments, a young officer was at once treated like an ordinary recruit. He drilled and worked alongside the men in the ranks. The result proved to be that all sense of false pride and of disdain for those under him was soon knocked out of the ensign's head, and he got to know the men he would command and they got to know him. He was put on his mettle, and forced to develop his character, with the result that he became in every sense a commander. It has been recorded that the officers of these regiments were never averse to such a course, and that not only was the benefit in training and character invaluable to them later on but a large proportion attained high rank and distinction. It is true to say that after having received His Majesty's commission an officer has continually to be justifying in the eyes of his men his right to hold it.

(f) Sir John Moore also laid down in his regulations that his "officers' duties were to be their only pastime and amusement." In other words, an officer's job is never done. Day and night his one thought must be for his men, their physical health, mental training, and spiritual welfare. It is still true that unless a candidate for a commission is prepared without reservation to place all these before his own private wants, he ought not to take a commission, and won't make a success of it if he does. The whole secret is trained self-abnegation. The principle underlying all military service is service for others. General Eisenhower ascribed the success of the troops in Tunisia largely to the fact that "everybody was 100 percent for everybody else." Discipline has been described as nothing but organized and directed unselfishness. The more one can eliminate "self" in one's Army career, the better soldier one will inevitably be.

The British soldier is likable and the more you know him the more you like him. Once you have been in action with him and seen him overcoming his fear in the same way as you, putting up with wretched conditions, remaining cheery and prepared to stick it out with you, you will realize that the very least you can do is to vow that, come what may, you will not let your men down, and that their welfare will be your first aim and object always. This is the feeling of most officers who have had experience of their men standing by them in war. Always keep in mind the precept on which British officers have been trained for generations:

"The safety, honor, and welfare of your country come first, always, and every time.

"The honor, welfare, and comfort of the men you command come next.

"Your own ease, comfort, and safety come last, always, and every time."

It is not so difficult to understand as tedious and arduous to put into practice.

Massed Fire in Defense

[Translated for the Command and General Staff School, Fort Leavenworth, Kansas, from a Russian article by Colonel J. Khitrov, Soviet Army, in *Krasnaya Zvezda* 24 June 1943.]

A SYSTEM of fire is usually defined as the organized application of fire means in combat. Such a system is based on definite principles, which are recommended by our manuals and have been more than once tested in battle. In defense, the ability to meet the attacking enemy with massed fire is of decisive significance. This fire must be powerful and effective. This is achieved not only by apportioning a sufficient amount of fire power and ammunition, but also by using several types of fire means. Mixed fire is most advantageous when one and the same sector, usually close to the front edge, is taken under fire simul-

taneously, to the surprise of the advancing enemy, by all infantry weapons, artillery and mortars. The power of such a fire is irresistible. It can inflict considerable losses on the enemy and upset his offensive effort.

At the present moment, our troops and those of the Germans are in immediate contact almost everywhere along the entire front. The advance positions of both sides are, in places, separated by just a few hundred yards.

The long lull at the front, which began rather long ago and continues at present, allows both sides to engage in the improvement of their defensive positions, to construct more solid shelters for weapons and personnel, and to multiply various antitank and anti-personnel obstacles. This naturally affects the organization of the system of fire in defense and is likely to lead to some peculiar characteristics in the forthcoming battles in those sectors where the Germans will, possibly, attempt to attack our positions.

Under such conditions, artillery, mortar, and, to some extent, machine-gun fires will have sometimes to be used at close and even medium ranges from the moment when the forward enemy echelons have already started the attack. This adds to the importance of close-range massed fire, which is prepared by the defenders for the area in front of their advanced positions in order to repulse the attacks of enemy tanks and infantry. It must actually be able to repel any attempted enemy attack, regardless in what sector it develops and no matter what enemy infantry and tank forces are employed there.

When organizing a system of fire in defense, the enemy tactics must also be considered. When undertaking a decisive attack the Germans throw into action large forces of tanks and infantry supported by powerful artillery fire and incessant blows from the air. Sometimes the directions of the major blows are shifted quickly along the front, depending upon the results obtained. Germans use every effort to penetrate immediately into the depth of the defense. This means that, in some places, the battle might shift from the front line to the rear and spread to a certain depth. The proximity of enemy positions to our defenses contributes to the surprise of the attack. The defensive positions of the enemy, serving as prepared areas of departure for his offensive, conceal, at the same time, the maneuvering of his forces and facilitate their regrouping in case of an unsuccessful attack.

Thus, the system of fire must be calculated to smash sudden armored attacks of the enemy, undertaken in conjunction with infantry, artillery, and aircraft. The defenders organize the fire of all their weapons to insure definitely the possibility of meeting every new effort of the enemy, wherever it may take place, with a concentrated and destructive fire. Of course, this cannot be done if all fire means are tied

down to their positions and are not prepared for maneuvering.

Maneuverability of fire is the basis of the entire system of fire in the defense. Only by means of such maneuvering, can the defender increase his resistance at the point where the enemy, having struck the main blow, tries to decide the outcome of the battle. Therefore, before the battle and during the construction of the defense positions, high mobility of all fire means and their uninterrupted control should be attained. In addition to the main positions for machine guns, mortars, and artillery, alternate positions should be selected. Artillery, mortar, and machine-gun crews should know the tactical importance of every position. They should also know who has the right to order the opening of fire and what signal is to be used for it.

It is necessary to prepare earlier the firing data for every assigned target or line. These data must be recorded in the note books and firing cards of the commanders responsible for the precision of fire. However, if the conditions of the situation allow, it is necessary to have recourse at the first opportunity to registration fire on all targets and lines. In order not to disclose the firing positions to the enemy and not to attract his attention any more than is necessary, it is best to conduct control fire on targets in a dispersed manner, and not all at once with all the weapons designated for concentrated fire on the given sector.

In preparing fire maneuvers and especially when concentrating fires on the most important terrain lines and areas, it is necessary to strive that this fire be powerful and to create this power with different fire means. The areas in front of the forward edge of the defense, and within it, where it is desirable to direct the fire of most of our fire means, should be constantly observed by the commanding officer. He locates these areas on the terrain. He also decides how many weapons and what fire means should be used for barrages and concentrated fires. It is most important to defend the immediate approaches directly adjacent to the forward edge of the defenses, especially where massed enemy armored attacks are practicable, as well as all places leading the enemy to the limiting points or to the spaces between our units and subdivisions. When the areas for barrages and concentrated fires have been decided upon by the senior commander and all necessary means assigned, it is necessary to organize the technique of preparation of fire and of calls for it. This seems to be a simple matter and one that does not require much care. Actually in some places it has been so treated. This is what happened in the N-th Infantry. The unit was on the defensive. The data for the fire of two artillery batteries, several battalion mortars and a platoon from the machine-gun company had been prepared. This fire was intended to cover the edge of a small grove just ahead of the forward line.

By agreement, the signal for fire was to be a rocket sent up from the command post in the direction of the enemy by the battalion commander charged with the defense of the positions in front of the grove.

All the information obtained by reconnaissance pointed to an early enemy offensive. In the sector of the regiment, a concentration of enemy tanks approaching the grove from the west was observed. Judging by the terrain and the actions by the enemy, the main blow could be expected to come from the direction of the grove.

Actually, the German offensive began in a different manner. Their main forces attacked a defense sector to one side of the grove. Naturally, most of the fire means, including mortars and guns which had been assigned to cover the edge of the grove, were immediately directed there. At the height of the battle the situation changed. The Germans, as previously expected, attacked from the grove. The battalion commander gave the prearranged signal for concentrated fire. Either because those responsible for it had not noticed the signal or for other reasons, the attacking battle formations of the enemy were not at once met with massed fire. Only the battalion weapons, especially the machine-gun platoon previously assigned to this area, opened fire. It is true that the enemy attack had only limited success, but it proved extremely difficult to repulse it.

This example suggests the following conclusions. When concentrated fire or a barrage by various fire means is planned, some weapons should be left in reserve (over the normal needs for a sector). Another solution is to plan several possible variations in their use. If one variation fails, another can be used. This makes the fire system more flexible and capable of hitting most important targets.

What happened in the N-th Infantry is also a reminder of the fact that no amount of fire preparation can fully guarantee its perfect application in combat. All means of fire still have to be continuously controlled.

Besides the ordinary methods of communication used by troops in combat, one should keep in mind other methods which turn out to be useful for fire control. If the fire of several artillery, mortar, and machine-gun units is to be concentrated on one or another terrain line, it is not sufficient to maintain communication by wire or messengers or depend solely on the prearranged signals for opening fire. It is necessary to have previously established common orienting points, to designate by special names or coded radio signals the areas to be subjected to concentrated fire, and to give instructions concerning the order of opening fire. Most important is the preliminary agreement between the commanders. They study the sectors to be covered by fire, determining where machine-gun fire should be used and where mortars and artillery are preferable. Of course, all these preparations are done to insure the

best accomplishment of the mission assigned by the higher commander, and for the purpose of covering the entire designated sector (terrain line) with an impassable screen of fire, laid down at the right time.

As has already been indicated, the areas just in front of the forward edge are to be subjected to concentrated fire first. The flanks, the gaps, and the approaches to the limiting points between the units should always be covered by fire, no matter on what terrain they are located. Here, basic fire means are provided by the commander responsible for the defense of junctures between units, and the fire of the neighboring units is used in support.

In the situation discussed above, the study of the terrain alone will help the commander establish the direction of fire correctly. It is much more difficult to designate areas to be subjected to concentrated fire in the entire depth of the defense and to determine the means of fire which would have to be used for this purpose. For when a battle develops in the depth, the original disposition of the fire means of the defender will be disrupted. Mortars, machine guns, and sometimes even artillery will be wholly or partially shifted to new positions.

Massed fire attacks on certain sectors of our defenses should also be planned. Of course, there will not be so many such sectors as there will be in front of the forward edge, but the main directions and important terrain lines, where the enemy can be hurt most by fire combined with our counterattacks, should be under a powerful artillery fire. The terrain must be studied carefully in order to determine the places where enemy tanks and infantry are likely to wedge in and where a counterattack would be most advantageous. As to the fire means which could fire upon the enemy who has wedged into our defense, such will be available if the system of fire is organized skilfully and the control of fire means is not lost during battle.

In such cases, fire means located in the depth of the defenses should be used first. This group includes not only the artillery and the mortars which occupy positions in the rear and remain there but also those machine guns, mortars, and guns which have already changed their positions. They must be withdrawn to alternate positions according to the commander's plan and with his permission. Even if some of them are knocked out of action, the rest will be placed where they are needed for accomplishing fire missions previously decided upon.

Moreover, every prudent commander always leaves a certain amount of fire means at his own disposal. Naturally, they will fire in the area of the forward edge of the defenses and support other units in beating off the attacks of the enemy. But their primary mission, however, is still to act during the critical moments of the battle. Having such fire means, the commander will be able to augment the power of con-

concentrated fire in the depth of his defenses when it is needed. Some infantry commanders, not wishing to be bothered with such things, surrender the control of their machine guns and mortars to their subdivisions without regard to tactical implications of this action. Such commanders will be deprived of the "fire fist" (concentrated fire of all available means) and will not be able to influence the course of the battle at the decisive moment.

Finally, a concentration of fire in the depth of one's defenses can be attained by a speedy regrouping of fire means. They should be taken from places of secondary importance and moved where the enemy exerts his main effort. By means of a rapid maneuver of firepower, the defenders will be able to attain fire superiority over the enemy and beat off his attacks from any direction.

Civil Affairs and Military Occupation

[An article in the *Journal of the Royal United Service Institution* (Great Britain) November 1943.]

NO MATTER where we strike in Europe or the Far East we shall have to control many millions of civilians before we have gone very far into the territories now held by the enemy. When any territory (liberated areas or enemy) is occupied by an invading army, it must be brought at once under the control of the commander in chief of the invading army. This military control therefore necessitates the addition to the commander in chief's staff of the necessary organization to re-establish all essential services. That organization is the Civil Affairs branch.

It has been created so that the commander in chief has at hand the means of exercising all his powers to the extent permitted by the long established laws and usages of war, subject always to the limitations imposed by the Hague Conventions and by the directives of policy furnished to him by the government to whom he is responsible. The extent to which control will be exercised and the time which it will last must vary considerably in Allied and enemy countries. In the liberated territories of our Allies it is a temporary measure and will be as brief as the military situation will allow. In enemy territory the commander in chief achieves his object by placing the territory under military government.

So long as military operations continue, the responsibility for the civil administration in the area immediately concerned must rest upon the commander in chief. In order that he may devote his full attention to his primary object of defeating the enemy, he may delegate the responsibility for military government to his Chief Civil Affairs Officer (C.C.A.O.) who, thereafter, acts in his name.

The type of Civil Affairs organization in a forward area is different from that in the same area when the battle has moved on. It has been found advisable in the combat areas for the Civil Affairs staff

to be mobile. This staff moves with the fighting troops and carries out first-aid measures to re-establish local administration as far as circumstances will permit. As the battle moves forward the static administration based on the normal administrative boundaries of the country should, as soon as the military situation allows, replace the temporary Civil Affairs staff. In Allied territory, the static administration may be a national administration set up by the Ally concerned, having liaison officers attached to ensure that it functions according to the need of the commander in chief, for as long as military operations continue. In enemy territory static administration will be found by Civil Affairs officers until such time as other arrangements are made and these will usually be directed by a Control Commission until the final peace settlement.

It stands to reason that it is not practicable to provide enough officers through Civil Affairs to administer occupied or liberated territories direct. Therefore, whenever possible, the local administrative machinery is set working again with Allied personnel to guide, direct, and instruct.

In order to facilitate the military operations of the commander in chief, the establishment of law and good order and the feeding of the civil population on a day-to-day basis in towns, as they are occupied by combat troops, is the first concern of Civil Affairs. If time permits before entering any substantially inhabited center, arrangements are made by Civil Affairs officers with the combat troops engaged to close and mount guard on all bank premises, guard power stations and public utilities, prevent access of troops to religious buildings, museums, monuments, and works of art which are liable to be damaged. They will arrange in cooperation with the military security organization for the arrest and internment of undesirables; for billeting, in cooperation with the local authorities, if available; for the provision of food for troops; and for assessing the amount of local resources available for the civil population. Local hospitals have to be reopened and, where necessary, temporary hospitals set up in suitable requisitioned buildings. Prisons are visited and the cases of all prisoners investigated. Water supply, electricity, public health, and educational departments are given every possible help so that they operate again with minimum delay. Local Courts of Law are reopened under license and supervision as and when suitable personnel are found for them to function.

The control of refugees and the homeless is always one of the major problems to be tackled. Whilst refugee control is primarily an operational matter, it has been found advisable to set up camps for refugees outside populated areas in order to avoid unnecessary congestion in the cities and towns until, at least, the food situation is well in hand, and Civil Affairs has been able to find some solution to provide temporary accommodation for the homeless.

The able-bodied are given work and receive a wage for this work. In territory, occupied or liberated, there should be no unemployment. Fire Services, Civil Defense, and Bomb Disposal may have to be resuscitated and reorganized so that adequate protection against air attack is assured. The care of the aged and infirm has to be considered and the education and welfare of the children put on a firm basis at the earliest possible moment.

Throughout all these activities, Civil Affairs maintains close liaison with the Royal Navy and the Royal Air Force, and sees to it that these Services share with the Army in such matters as labor, accommodation, and transportation, over which Civil Affairs holds a watching brief.

The main object of military government is to help the prosecution of the war, and this can be accelerated by realizing the importance of the welfare of the governed. Law and order will be more easily re-established and maintained under a form of administration which the people understand. In order to prepare Civil Affairs officers for their job, training centers have been created. There are two in the United States of America, and in this country we have a Civil Affairs staff center. In North Africa and the Middle East subsidiary training centers have been established to deal with the problems peculiar to those theaters of war. The aim is to attract men of mature years and judgment; their ages range between thirty-five and fifty-five years and the average age lies between forty-five and forty-six years. Men under thirty-five years are eligible if of category B and in certain cases are accepted under the thirty-five years age limit if their qualifications are exceptionally high. All personnel have to be physically fit to undertake the strenuous duties which they will have to carry out. The types of men who receive training in this country are serving officers, officers from the reserve, officers recently retired, and officers newly commissioned from the Civil Service, the Police, National Fire Service, and the civil government departments of ministries, men from the Ministry of Food, Ministry of Public Health, War Department, and the like, together with officers from the forces of the Dominion of Canada, and of the Union of South Africa. These numbers will be swelled by the arrival of officers from the other Dominions within the Commonwealth of the British Empire.

The instruction given to students is extensive. It has four main categories: military instruction; the organization and methods of administration of Civil Affairs; instruction of a general nature under various functional headings, such as Public Safety, Finance, Trade and Industry, Civil Supply, Relief, etc.; and the geographical, political, economic, and cultural background of selected countries in Europe, their systems of administration and local government.

The work of Civil Affairs is of great importance; it has the added significance of being founded on the joint understanding of this country, the United States of America, and the Dominions. It needs the very best men available to carry out the tasks before it, and a clear and cooperative understanding of the many problems of civil administration by all the Services.

Reconnaissance in Mobile Combat

[Translated at the Command and General Staff School, Fort Leavenworth, Kansas, from a Russian article by Captain of the Guard V. Cherepanov, Soviet Army, in *Krasnaya Zvezda* 28 August 1943.]

IN MOBILE types of battle such as active defense, attack, and meeting engagements, reconnaissance is confronted with special demands. First of all, extraordinary speed of action and maneuver is demanded of it. Reconnaissance elements must be ready every minute for action in any direction. The command of reconnaissance units and groups becomes complicated. In conditions of wide maneuver and at times of considerable removal from the main forces, the assignment of new problems to the scouts and the receiving of reports from them are possible only with the aid of radio communication. To develop uniform methods of organization and conduct of reconnaissance by stages is unthinkable in mobile combat. Everything here depends on the concrete situation. Thus, the role of prudent initiative of all reconnaissance personnel is immeasurably increased.

What are the principles of organization of reconnaissance in mobile combat? What methods and means have the greatest effect? Let us try briefly to clarify these questions by the experience of our offensive in the region of Kharkov.

It is well known that at the time of breakthrough and battle in the depth of the defense zone the Germans try in every way to reestablish their situation; counterattacks take place incessantly, originating now in one, now in another place. It was precisely thus at the start of our offensive on Kharkov. To forestall counterattacks, especially in those sectors where the situation was not quite clear, the attacking units sent forward small groups of scouts of four to six men. These scouts, promptly informing their commanders of observed enemy concentrations and maneuvers, often caused the defeat of the intentions of the Germans. Here is one of numerous examples.

The enemy began to concentrate infantry and tanks in a wood, intending to counterattack against the flank of our advancing division. Scouts sent out to the flanks promptly discovered the enemy concentration in the wood, determined its strength, and reported this to the headquarters. The division commander knowing the direction and strength of the expected counterattack, took the necessary measures. When the German regiment, supported by twenty-five tanks, deployed in combat formation, our artil-

lery and mortars opened intensive fire. At this moment assault planes also appeared, foresightedly called out by the division commander. The German counterattack was beaten off without special trouble. The enemy lost eight tanks and not less than 600 men, and was forced to retreat in disorder, while our division continued the advance without letting him disengage.

In the period of fighting in the depth of hostile defense, air reconnaissance also did much. It quickly discovered the enemy's tank and motorized infantry concentrations and disclosed the maneuver of his counterattacking groups.

When the period of pursuit begins, the main thing is not to let the enemy get away with his main forces. Especially important at this time is the work of mobile reconnaissance groups. Experience shows that they must be sufficiently strong, using any means of movement—horses, autos, armored cars, motorcycles, and even bicycles. Such groups and units not only conduct reconnaissance, but also execute bold raids on retreating German columns intercepting the routes of their retreat and creating panic in the enemy camp.

The unit of mounted scouts under command of Comrade Bakay operated with great effect. Outflanking enemy screening forces through gullies, ravines, and woods, Bakay never for a minute lost contact with the main German forces. His scouts suddenly appeared in the rear of the retreating units, causing panic, and thus delaying the enemy's withdrawal. Acting thus, Bakay did not forget his chief task; he determined the main route of retreat of the hostile columns and the places of concentration of tanks and counterattacking groups. He immediately informed the command by radio of everything he noticed. More detailed reports were sent in by riders, and sometimes by captured vehicles.

In any mobile battle, and especially in the attack, it is important to discover promptly the approach of enemy reserves. Reconnaissance of all types must determine the time of departure of hostile reserves, the main march routes, and the moment of deployment. In this, the main role falls to air reconnaissance. It alone is able to check enemy roads and railways in operative depth and to organize systematic observation of discovered echelons and concentrations.

When the German defense zone in the Kharkov sector was broken through, the enemy quickly began to shift hither three tank divisions from other sectors of the front. Our command promptly learned of the approach of these divisions. Air reconnaissance did not let them out of sight from the very moment of their entrainment [or entruckment]. This allowed our command to regroup our troops correspondingly and also to inflict on the German tank divisions a series of powerful blows from the air while they were still on the march.

In tactical depth, data on the enemy obtained by air reconnaissance can be successfully supplemented and checked by ground reconnaissance. The sending of small groups of scouts to the rear of the retreating enemy has been particularly justified. They determine the real routes of retreat of the hostile units and the sequence of the retreat, and they follow the movement of reserves and the preparations for counterattacks. It is desirable to equip these groups with radio sets.

Retreating under the blows of our troops, the Germans try in every way to cling to intermediate positions and at times defend them with large forces. This usually happens in those cases when reserves come up and the enemy has decided to establish a solid defense in this or that position. In such a situation we often use the ordinary methods of reconnaissance employed in positional defense. Occasionally there is considerable organization of night raids. Interrogation of prisoners can establish exactly the forces and composition of opposing enemy groups and the direction of retreat of his other units. If the situation continues to remain unclear, reconnaissance by fighting is necessary. Usually it is necessary to have recourse to it when large enemy forces are defending the intermediate position. Reconnaissance by fighting almost always helps the command to discover the German system of fire and to feel out the junction points and flanks of the hostile units.

In one place, the enemy succeeded in stopping our division. It was clear to the commander that the Germans were approximately equal to us in strength. He decided to use initiative of action, and, without losing time, to attack the enemy so as to surprise him, drive him from his positions, and continue the advance. For this it was necessary to find the junction points between the German units. The division intelligence officer, Major of the Guard Avramenko, personally organized a reconnaissance group and planned its actions. This group consisted of only fifteen men. Under cover of artillery fire, the scouts, hiding in bushy weeds, were able to crawl up almost to a hostile regiment and feel out its flanks. Despite their small number, the group suddenly attacked the Germans and seized some prisoners. On the basis of the reconnaissance data the division commander aimed a blow directly at the junction point. Our units moved far forward and separated two German regiments. Under threat of encirclement, the enemy began to withdraw in disorder and suffered large losses in men and equipment.

Reconnaissance by observation is more widely used by our units. A net of observation posts is organized by staffs of all units, disposing them on the commanding hills near the enemy. It is important under all conditions of the situation to achieve uninterrupted observation by officers of the actions of hostile troops. This is attained to a considerable degree

by mobile observation posts, such as tanks and armored vehicles.

Deserving of attention are special groups formed in some units to collect documents in billeting places of destroyed German headquarters and also from dead enemy soldiers and officers. These groups obtain a sufficient quantity of documents, among them staff documents, to enable our intelligence agencies to control or check available data on the enemy. We consider that the organization of such groups in divisions and armies must be practiced as widely as possible.

The last item we wish to discuss here is the exceptional importance of prompt receipt of data about the enemy. In the mobile forms of battle, when the situation changes every hour, all reports of reconnaissance groups, and also information from lower to higher headquarters, must be transmitted at once. Unfortunately, not all intelligence officers give the time element due consideration.

Modern Army Rations

[Translated at the Command and General Staff School, Fort Leavenworth, Kansas, from a German article by Lieutenant-Colonel Benary, retired, in *Kölnische Zeitung* 4 September 1943.]

"CONTENTE estote!" "Be contented with your ration bread!" The old army admonition appears outmoded when one hears from the Commissary Service that it has a hundred and fifty fine articles in stock for feeding the soldiers. To be sure, the bread, meat, cereals, butter, cheese, potatoes, and vegetables provided by the particular theater of operations play today, as yesterday, the main role in the feeding of soldiers at the front. But in addition to this, modern nutritional science and preserving, dehydrating, and freezing methods have made it possible to provide the fighting forces with articles of food which permit the regulation of their diet on a scientific basis, and at the same time make it more varied, more palatable, and more beneficial, and suit it to the climatic conditions of the theater of operations, to the season, to the wishes of the men involved, and to the particular needs of the combat commitment of their particular arm of the service—to the needs of the submarine crews or of the flying personnel of the air force.

Attempts of this sort have been made at all times and in all nations. Livius reports that the Roman legionnaire was issued a kind of toasted bread about as thick through as the finger of a man, but which, when moistened, swelled to the size of two fists. The Indians of the Leatherstocking period, when on the war path, carried pemmican along sewed up in buffalo skins, a mixture of finely chopped buffalo meat and buffalo fat and wild fruits and berries. *Erbswurst*, a mixture of ground peas, beans or lentils, reindeer fat, lean bacon, onions and other vegetables,

stuffed in natural casings or waterproof paper, the recipe for which was given by the Berlin cook, Grünberg, about the middle of the last century, celebrated its triumph during the Franco-Prussian War. The preserved vegetables of the World War differed but little from it, and it continues its existence even today in the form of the ready-prepared march preserves. Attempts to remove the water from foods, employing the dehydration method of preservation in their preparation in the home land, restoring it again in their preparation at the front, led during the World War to the dried vegetables which were not always and everywhere appreciated.

Since that time the dehydrating process has succeeded in producing dried vegetables, such as dried sauerkraut, dried spiced kraut, cheese marmalade, apple, and milk and egg powders, all of which preparations have retained both the color and taste of the original substances. A great deal of weight is saved thus in their transportation, the perishability of the particular articles of food is diminished, and their value is increased for their employment in the field. Various forms of hardtack belong in the same category. Refrigerating processes with their refrigerating plants, refrigerator trucks, refrigerator boats, planes, and bunkers, and refrigerating containers, are likewise in the food service of the armed forces and provide them with refrigerated meats, fish, fruits, and vegetables. In addition there exist a number of foodstuffs and stimulating substances which were foreign to us of the old school—the soy bean in its many and valuable forms, fish paste, paprika, tomatoes in the form of pulp and powder, chocolate, yeast extract, tartaric acid sugar, etc. Naturally there does not exist an unlimited amount of all these foods for preparation in the field kitchens of the front-line forces. A few of them are found in quantities only in certain quiet places of the front, for instance, in field and communication zone station hospitals. In addition to the aforementioned ready-prepared march soups, there has been prepared for the requirements of the fighting front the emergency ration, an energy giving mixture of preserved meat, soy beans, egg powder, oat meal, and spices which may be enjoyed either cold or in the form of soup; "Bratlings powder," a mixture of soy bean, cereal, and milk albumen products, which in the hands of a skilful cook is changed into meat balls, cabbage rolls, and meat dumplings; the "Landjaeger," a sort of sausage of from 75 to 85% powdered meat with soy beans, tomato pulp, dried fruit, yeast extract, paprika, and lecithin added, and we must not forget the various sorts of preserved meats, sausage, and fish. The mixed preserved foods—preserved meat and vegetables such as are known to all tourists—are provided, along with an alcohol stove in cigaret-case form, for smaller groups of forces whose combat mission separates them for a longer or shorter period of time from their field-

kitchen unit; for instance, men in the advanced armored detachment [literally, "armored point"].

For unusual combat conditions, special packages are provided whose contents are calculated to stimulate and strengthen the bodies and nerves of the person who eats them. For instance, the packages for the front line men in great battles contain cigarets, candy containing vitamins, cookies, fruit bars, cream chocolates; for the crews of airplanes, similar articles, and in addition "student food" (dried fruit), marchpane, tea, coffee, blood sugar; for paratroops, with the view to providing them with food for some time, meat and cheese sometimes put up in tubes, chewing gum, Zwieback, cognac, cigarets, and windproof matches; for shipwrecked persons (the crews of planes and boats) there are, anchored in buoys over stretches of water that are much traversed, concentrated foods packed in waterproof containers. For dropping down food from airplanes over very advanced forces or forces who are surrounded by the enemy, special containers have been constructed. Airplane crews require special "starting rations" of light, easily digested foods.

The principal drink of the soldier is coffee mixture. In addition to this, depending on the type of theater of operations, the season of the year, and the combat situation, they are issued tea, cocoa, alcohol, and fruit juices. The food that is issued to them is supplemented by sutler provisions (drinks, sweets, tobacco, articles of daily need) which also are supplied to the troops by the army administration.

The best of foods lose their value, all the pains taken in their production and all the efforts made for their delivery are in vain, if they are not properly prepared at the place where they are consumed. The introduction of the field kitchen was the first step in this direction. Accompanying them, and in the army kitchens in the rear of the front and at home, there are soldiers (also women at home) at work who have been especially trained for their responsible task—in some cases in training kitchens—and at whose side there is a field cook book full of advice. Every German front line soldier carries with him an emergency ration, a so-called abbreviated "iron portion" which must not be touched except in critical situations at the express command of his superior officer. A second complete "iron portion" is to be found at the field kitchen.

Correct and adequate rations play a decisive role on the march, in the air, and in journeys by water. The person responsible for their always being on hand at the right time and in sufficient quantities during the present war—the scientists and nutritional chemists, the officers and officials, the field cooks and field kitchen drivers, the men working in the bakeries and slaughter houses, the workers in the preserved food plants, the supply train per-

sonnel—cannot be adequately thanked by the men at the front or the people at home.

Personnel and Equipment for Mountain Warfare

[Translated at the Command and General Staff School, Fort Leavenworth, Kansas, from a Spanish article by Colonel Fernando Redondo, Mexican Army, in *Defensa* (Mexico) July 1943.]

THE DIFFICULTIES and the slowness which characterize transportation in mountainous zones make it necessary for the infantry soldier to be more burdened than if he were fighting in level terrain, and this, in the mountains where there is climbing to be done, makes marching harder. It is here that the phrase "to go loaded down like mules" applies, for while a load of 100 kilograms is assigned to a mule weighing 300 kilograms, the mountain infantryman carries a load much greater than the third part of his weight. The French mountain soldier before the first World War carried a load of from twenty-seven to thirty-two kilograms. Afterwards, as the result of a few reforms, it was reduced to twenty-five kilograms.

From this we draw a conclusion. The mountain infantryman must be more vigorous and possess more endurance than his comrade in level terrain, not only on account of the greater fatigue of the marches but also on account of the greater weight of his equipment. The best soldiers are the mountaineers of the same zone which they are called on to occupy and defend.

There exist analogous reasons why mountain soldiers of other arms should also be robust. In field artillery units the personnel travels seated on the guns and limbers, but in mountain batteries it has to travel on foot. The stretcher bearers have to carry wounded across country to the nearest pathway. Even the soldier of the cavalry unit frequently has to travel on foot leading his horse by the reins for the crossing of some difficult place or in order to avoid tiring the animal excessively. Whatever may be the arm in which they are to serve, the strongest and most robust men should be chosen as mountain troops.

Practice shows that the mountain soldier should have two uniforms, one for the march and the other for rest periods. The first should be sufficiently loose fitting and light in weight for freedom of movement. It should afford sufficient protection to prevent catching cold, a thing which is always possible in sudden changes of temperature. It should have a collar capable of being turned up and cuffs on the sleeves which can be turned down so as to protect the ears and hands, respectively, from the cold. For the lower part of the body, trousers are required which permit easy bending of the knees. Ordinary or wrapped leggings are to be recommended on condition that they do not bind too much, for if the free circulation of the blood is interfered with, the feet may freeze in the winter. Generally speaking, the uniform should take its in-

spiration from what the natives wear in the mountainous zone in question, the experience of centuries having shown them the most suitable clothes for the climate of their country.

A jersey or "sweater" should form a part of the rest uniform, as it permits the soldier, if he is obliged to remain for some time on the summit after a hard climb, to remove his shirt in order that it may dry, to dry and rub his body with a towel, and immediately put on his jersey in order not to take cold. When the shirt is dry it is put on again, and in this manner the man avoids the necessity of letting the shirt dry on his body with the consequent danger of catching cold. This also permits the man to reduce the impediment caused by underwear.

For protection from the rain a loose-fitting, lightweight rain coat may be used, or else a piece of individual tent which must always be carried in order that there may be shelter in the night camp.

Footwear for the mountains should be stronger and better-wearing than that used in level terrain. It is recommended that the soles be provided with special hob-nails which will make them wear longer and help the men keep their footing on extremely steep slopes. The soldier should also have a pair of light, strong shoes for periods of rest. These he can put on to finish the journey when his feet suffer greatly from marching, and to rest his feet when the journey has been finished.

The most practical knapsack is the Tyrolean sack. It is of waterproof cloth and is held in place on the back by straps whose length may be changed at will. The straps may be lengthened until the sack rests on the rear cartridge case, thus relieving the burden of the load.

In mountain warfare the individual tool of the engineer will scarcely have any other uses than for constructing light defense works and for work in the camp, as mountain zones offer many natural shelters and many dead angles for protection from the enemy's fire. A staff with an iron tip will be much more useful. This can be used on steep slopes and in places off the beaten path. Some detachments in special cases may carry ropes.

The rations which the soldier will carry in his knapsack will depend on whether the zone is barren or cultivated and populated, and on whether the population is friendly or hostile. Generally there is no need to carry more than a cold lunch and a day's provisions, heavy ration. The canteen with a capacity of one to two liters—according to the abundance or scarcity of water in the terrain—should be carried, with the water mixed with a little coffee. As far as alcoholic beverages are concerned, distilled liquors (whiskey, etc.) should be absolutely prohibited. As for fermented beverages, they may be permitted if the soldiers have been used to them before coming into the army; but it is a superstition to believe that such drinks are necessary because of the great fa-

tigue that these troops have to suffer. The Algerian Moroccan soldiers of the mountainous regions of North Africa have been excellent mountain troops in the French Army, and they do not drink wine. Alcohol distends the veins and favors the radiation of heat from the body causing it to become still more chilled, and produces a momentary stimulation followed by a depression greater than the original fatigue.

At times it is well to carry along an individual cooking vessel in place of the collective cooking pot.

The soldier should carry his equipment in such a way that the following conditions are fulfilled: (1) there should be the least possible interference with movement on the march and with the use of the rifle, especially when prone firing has to be engaged in; (2) the throat and chest should be free for breathing; (3) the center of gravity of the man with all his equipment should be as nearly as possible the center of gravity of the same man without his clothing, namely, in the center of the pelvis near the waist.

The weapons carried by the mountain soldier are as follows:

The carbine rather than the rifle. It is shorter and therefore lighter in weight and in the mountains it gets less in the way. It has sufficient range in view of the greater limitation of the zone of action in extremely broken terrain.

The knife-bayonet is better than the long bayonet, as the latter interferes with the movement of the legs in cross-country travel.

The automatic pistol, the machine pistol, and the automatic rifle may be employed in the mountains the same as in level terrain.

The battle supply train at times may be farther away than in the plains, as regards the time necessary to bring ammunition from it. This makes it necessary for the cartridge supply given each man to be larger. As a rule it is well not to carry less than 120 cartridges per man.

Hand grenades will seldom be used. But this is not true of rifle grenades whose range is 200 meters or more, a distance quite usual in mountain combat.

The fundamental characteristics of mountain regions are (a) an abundance of obstacles in the terrain, some of them impossible to cross, (b) scarcity of communication routes, (c) the presence of chains of mountains which divide the region into zones between which, at times, communication is difficult, (d) scarcity of resources, and (e) special climatic conditions.

These characteristics impose the following conditions on the fighting units: (1) a large allotment of means of transportation (mules and light vehicles), (2) a greater depth in the echeloning of the units and a greater front, and (3) as a consequence of the foregoing, a decentralization of all types of elements.

Cars and trucks will have to be reduced to those

that are indispensable, and animal transportation, with all its inconveniences of slowness and the necessity of carrying grain and forage for the pack animals, will have to be increased.

As for infantry and cavalry, each company and troop will have to be provided with a certain number of mules for carrying ammunition, food, water, and equipment. The battalion and regimental combat supply trains must also carry a large part of the ammunition supply.

Rarely will cavalry be employed as a shock force. Its most frequent use will be for reconnaissance of certain details which passed unnoticed by its own aviation, or for reconnaissance when aviation cannot be employed, and, like mounted infantry, for the purpose of rapidly occupying some determined point.

Infantry acts not only by means of its fire but also by means of its movements in overcoming the difficulties of the terrain, which are at a maximum in the mountains. Infantry units, and units of cavalry or mounted infantry, are frequently obliged to act independently without the support of other units. They have to fulfil their mission with the conviction that their task forms a part of the plan conceived by the high command, from which they are not isolated in a moral sense although occasionally they are all alone in the physical sense. This requires of the soldiers a high moral education.

The artillery, in addition to needing mules as do also both infantry and cavalry for carrying their baggage, requires them for the transportation of their guns which have to be constructed in such a way that they can be broken down into several loads.

The necessity for firing on targets behind ridges necessitates the employment of curved and vertical trajectories. The proportion of curved trajectory weapons should therefore be larger with mountain troops. It cannot be less than one group of 10.5-centimeter mortars for each infantry regiment.

The artillery park should have good mule-pack transportation to carry ammunition wherever it may be necessary.

The fighting troops should help the engineer forces in the task of repairing roads and in the construction of passages. This should be done, whenever possible, under the supervision of an engineer officer. However this does not signify any reduction in engineer forces, since, in constructing the passages, they will have to perform hard work in cutting their way through rocks, making ditches, clearing the terrain, etc., and this will require the employment of drills and other instruments by a specialized personnel.

Neither should there be any reduction in the percentage of quartermaster service or medical troops. The first have to look out for the feed for a large number of pack animals, and both these types of troops, with their trains of food supplies and with the evacuation of sick and wounded men, have the hardest of labor to perform in the mountains.

If aviation is necessary to the troops in level terrain, it is all the more necessary to mountain troops. The aviation looks over all the irregularities of the terrain and bombs hidden targets.

The personnel of the aviation which has to operate in mountainous regions has to be selected. The pilots have to be more skilful, for aircraft are more exposed to irregular movements, landings are more difficult, and suitable places are scarcer. Observation is also more difficult. On slopes in shadow, especially, fogs are more frequent and the enemy is able to camouflage himself more easily and even to conceal himself in caves. Railroad trains stop in the tunnels and pass without being seen. The many rocks add to the confusion. Frequently one is unable to locate on the map a single detail of what he has been able to discover in the terrain, and any mistake in location is of much more serious consequence to the command than it is in level terrain. Observation in a mountainous terrain is the supreme test for observers.

Suggestions for the "Work Gun"

[Translated at the Command and General Staff School, Fort Leavenworth, Kansas, from a German article in *Artilleristische Rundschau* August 1943.]

GENERALLY speaking, "work guns" are employed in defense and in fixed situations and for the following purposes:

1. To prevent the betrayal of one's own firing position.
2. To render the work of the enemy detection devices difficult.
3. To take care of harassing fire and adjustment fire missions.
4. To assist the advanced observer, on occasions, in fulfilling his firing missions.

These guns are stationed off to one side of, or diagonally to, the battery. It is best if the "work gun" can be placed—as far as possible considering the nature of the terrain or the matter of concealment—in the lateral prolongation of the line drawn through the other guns. Too near an approach to the battery makes its employment useless since at times the battery may then be situated in the field of fire intended for the "work gun."

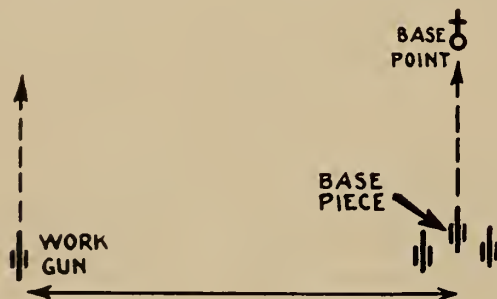
Separate determination and announcement of traverse angle and range for battery and "work gun" occasions no difficulty in map fire, but it is more difficult in the case of observed fire. "Memorandum for Artillery, No. 6," gives one method of procedure: viz., a new base line is established for the "work gun" to a point situated on the base line, which point is approximately in the center of the target area. Practically, therefore, the battery is united.

Nothing will be said here of the disadvantages of the above method; but the following procedure, which has proved its worth in the writer's battery, is offered:

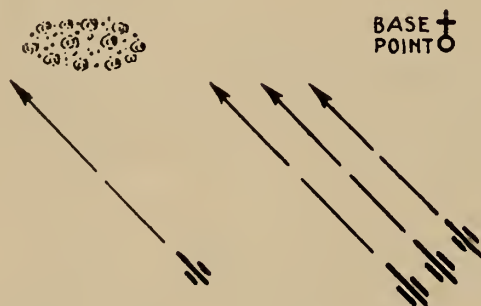
The base piece is lined up on the base line. The "work gun" is placed parallel to it and hence points to one side of the base-line point by an amount equal to the interval between the base and "work" pieces. The "work gun" constantly maintains this base line.

When the "work gun" adjusts its fire, the battery, which is parallel to it, adjusts its settings in accordance with it. Only when the change is made to fire for effect is the fire brought together and the interval eliminated either by rule of thumb or by means of a table in such a way that the four shots lie beside one another on the target with the natural intervals of the four guns. Thus the difference in position in excess of a normal gun interval of forty meters is eliminated: e.g.,

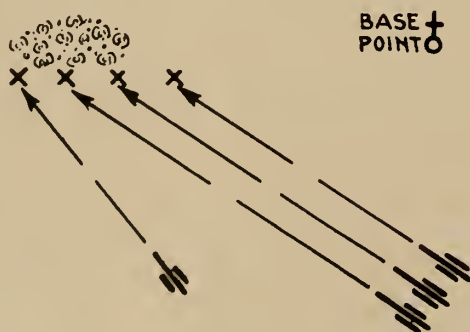
a. The battery is lined up with the base line:



b. The battery adjusts itself parallel to the "work gun":



c. In change to fire for effect, the battery is brought together and the shots brought alongside one another:



As a rule platoon commander No. 2 is with the "work gun." In addition to receiving the commands from the battery, he must select from the table the supplementary correction of lateral pointing for the "work gun" when the fire has been adjusted with the base piece. When the situation demands it he must determine and cancel the echelonment interval by the help of the battery survey chart.

The three guns in the main firing position are handled as a unit by the No. 1 platoon commander.

In the case of the above method, full advantage is taken of the fragmentation effect of high explosive ammunition. Both a rapid opening of fire and a high rate of fire are made possible.

The Fighter-Bomber

[An article by Captain Patrick Swan, in *An Cosantóir* (Eire) July 1943.]

WAR COMMUNIQUEs today frequently mention the fighter-bomber. In fact, this aircraft has achieved the publicity which, during 1940 and 1941, was given to the Stuka dive-bomber. The reason for this is to be found in the obsolescence of the dive-bomber, and the increasingly wide use now made of fighter-bombers as a result of their success in North Africa and Western Europe.

The original dive-bomber was a specialized type, built for one purpose only, and could not successfully be employed for any purpose other than the one for which it was designed. It was used with great success in Poland and the Low Countries, where the opposition was negligible, and it came as a surprise both as to type and method of attack. Later, however, losses were high due to lack of defensive armament, low speed, and limited power of maneuver relative to the fighter. It was found that in the face of enemy air superiority dive-bomber losses were so high as to outweigh any results achieved. Another factor contributory to obsolescence was the lessening of the morale effect as a result of the growing training and seasoning of troops.

This conflict has proved very unfavorable for the highly specialized airplane, as witness also the disappearance of the pre-war army cooperation type—another specialized type designed chiefly for operating out of very small landing fields, and capable of flying at a particularly slow speed for such a large size and weight. These latter requirements have now been dropped entirely from the list of capabilities of an army cooperation type, and the emphasis put on high speed at ground level. Sound basic design, capable of modification, is what is aimed at. Adaptability is the characteristic most desirable, and the one chief factor productive of longevity in both aircraft types and military commanders.

At first sight adaptability of design seems to be opposed to efficiency, but in modern war there are many reasons why this is not so, particularly with regard to aircraft design. When a highly specialized type becomes obsolete for reasons such as the appearance of a superior opposing type, or the abandonment of one form of attack in favor of another, then the total production of that design becomes obsolete—a great loss indeed. Another point which should be remembered in relation to this is the length of time between the drawing board stage of a new type and

its mass production and delivery to squadrons. Any frequent change of types is a great strain on the aircraft industry, and results in a serious drop in total production. As this cannot be permitted in wartime, where the great need is quantity as well as quality, the emphasis is put on adaptability, in order that the demands of future developments may be met by minor modifications of the original and so cause the least possible disturbance to the flow from the assembly lines.

These are some of the reasons why the fighter was fitted with bomb racks underneath the wings or center section according to design, and became a fighter-bomber. There were large numbers of fighters pouring from the factories, and the modifications necessary were simple. It would have been fatal to wait for a specialized machine to be designed and produced, and in any event, there was no reason why the fighters already available in large numbers should not be pressed into service.

Apart from this aspect of fitting new gadgets to machines to fit them for different jobs, it is apparent that a very wide view is being taken of the functions of all the different categories, i.e., fighters, bombers, etc. There are no watertight compartments between their various spheres of activity, and the utmost use is now being made of the airplane's great attribute—flexibility.

The modern fighter aircraft, epitomized by the Hawker Hurricane, has displayed adaptability to an outstanding degree. This machine, which first flew in 1935, is still a formidable weapon today. In addition to its original function as a fighter, it has been one of the first, as well as one of the best, of the fighter-bomber class. It has been modified for catapulting from merchant vessels and for operation off aircraft carriers. In its armament, too, it has progressed. Starting with six Brownings, it has had this number increased to twelve in the Mark II. When cannons became a necessity, the Hurricane was equipped with four. Then in addition to its cannon and machine guns, bombs were slung underneath the wings. To give increased range, additional fuel tanks were fitted. Yet today, 1943, eight years after its first appearance, we find the Hurricane in still another role—that of "tank buster." This version, which is known as the Mark IID, has two 40-mm cannon fitted underneath its wings. Side by side with this development of the airplane itself has gone an improvement of the Merlin engine with which it is powered, and a progressive stepping up of the horsepower delivered.

Prominent among the new features of the present struggle has been the welding together of land and air action on a scale never before contemplated. Apart from strategic air forces, comprised of long range heavy bombers employed for the destruction of the enemy's centers of industry, shipping docks, etc., the main weight of air power is employed in giving close support to the land forces. This may be

called army cooperation, but it differs from the pre-war concept not only in the type of aircraft used but also in the method of employment. The chief characteristic of this close support has been the employment of fighter-bombers.

Enormous damage can be inflicted by fighter-bombers on the modern mechanized army which is so dependent upon transport of every kind, ranging from motorcycles and lorries to tanks and self-propelled field guns.

Heavy bombers are best suited for attacking large stationary targets such as factories, docks, and railway yards. Their effectiveness against troops, tanks, guns, and transport, which can move rapidly and take cover, is very limited. It is against these latter targets that the fighter-bomber has been used with outstanding success.

There are many reasons for this. The high speed and extremely low altitude at which the fighter-bomber operates enables surprise to be achieved. It might at first sight appear that the noise of aircraft attacking in this way would give sufficient warning to at least troops on the march to enable them to take cover, but such is not the case. The noise of an airplane flying at ground level is at a minimum when it is approaching head on. And as the speed may be as much as half the speed of sound—375 miles per hour—the warning received is very short indeed. As a matter of interest, the maximum noise is heard in the plane of the rotating airscrew.

This method of attack also makes interception by enemy fighters extremely difficult, and after it has dropped its bombs the fighter-bomber is a match for the enemy, even if it is intercepted. It is very difficult to make a diving attack on a machine flying very low, because of the danger of striking the ground. The attacker must engage at long range, when the chances of success are poor, or try to get in behind, but in this case the high speed and maneuverability of the fighter-bomber are in themselves a very good means of defense.

There is no danger from heavy antiaircraft guns and hits from small-arms fire are very improbable due to the short time the aircraft is within range and the great difficulty of keeping the sights on such a rapidly moving object.

This success has led to the modification of practically every type of fighter to carry bombs. In addition to the Hurricane, the FW 190, Lockheed Lightning, Westland Whirlwind, the ME 109, and the North American A-36 have all been used as fighter-bombers. The North American A-36 is a fighter-dive-bomber version of the North American Mustang with which the British Army Cooperation Command is equipped. The Mustang was originally designed as a fighter. The very successful Beaufighter twin-engined two-seater fighter has been modified to carry a torpedo, and has proved itself just as successful in the role of torpedo-bomber.

We have seen how the emergence of new tactics led to the carrying of bombs by fighters. In the case of the DeHavilland Mosquito, which has been claimed not only as the fastest bomber in the world but as the fastest airplane anywhere in service, we have a bomber which has also appeared in a fighter version. Mosquito fighters armed with cannon and machine guns were recently reported as shooting down two JU 88's over the Bay of Biscay.

The inclusion of cannon in the armament of all fighters is now universal. The effectiveness of machines armed only with rifle caliber machine guns is very limited, due to the extensive use of armor both on the ground and in the air. As mentioned above, cannon of 1.575" caliber is now a feature of aerial armament, and although its present mounting on the Hurricane is probably a wartime expedient and is bound to suffer from the defect that very little ammunition can be carried, no doubt very soon a new type will appear designed primarily for guns of this caliber or even higher.

The fighter-bomber is a wartime compromise, the product of new conditions and tactics. It is in reality the fighter turned ground strafers, with the additional ability to carry light or medium bombs. For a machine possessing such formidable fire power, it is only a logical step from shooting at bombers to turning its guns against targets on the ground.

In close support work, bombing is by no means the most effective role the fighter-bomber can play. It revels in ground strafing where its range of targets is almost unlimited, and includes everything that can be damaged by bombs, cannon shells, and bullets. There is really nothing new in the idea; it is as old as the last war, when the scout came down to rake the trenches with its slow-firing Vickers.

It may be interesting to give here some of the published figures for the weight of bombs carried by fighter-bombers. It will be seen that in some cases even medium bombers at the beginning of the war did not carry more.

Type	Bomb Load
Mosquito (bomber version) -----	2,000 lb.
Hurricane -----	*1,000 lb.
Curtiss Kittyhawk -----	†1,000 lb.
Curtiss Warhawk -----	†1,000 lb.
ME 109E -----	110 lb.
FW 190A3 -----	551 lb.

*2-500 lb.

†Full load can be in one bomb.

The fighter-bomber as a type has established itself. The future will see the development of a more specialized machine along the same lines, embodying greater fire power from guns, some of which will be 40-mm (1.575") or larger, high speed at ground level (about 350 miles per hour), and heavy armor.

The Hurricane IID is a step in that direction.

The high altitude fighter—the thoroughbred of the fighter breed—will always be required to meet the high-flying bomber, but in the fighter-bomber of

today we see in embryo a type which will play a part in future land battles comparable with the role of the tank.

Movable Crossings

[Translated at the Command and General Staff School, Fort Leavenworth, Kansas, from a Russian article by Major P. Serenko, Soviet Army, in *Krasnaya Zvezda* 21 August 1943.]

IN ONE sector the front line ran along a deep river whose left bank, overgrown with woods and bushes, was occupied by our troops, while on the elevated right bank were the Germans. At one place the river made a sharp turn in our direction. Using this natural wedge, the Germans converted the deep bend of the river into a small base. They thoroughly consolidated in a large populated place and on the ridge of hills surrounding it, whence they surveyed our positions and rear to a depth of many kilometers.

A certain unit of the combined arms was given the task of forcing the river at its bend and driving out the enemy from the large inhabited place and the hills, thus depriving him of a favorable position. The unit of the combined arms began to prepare for forcing the river, relying on the suddenness of the attack. It was decided that a reinforced infantry unit would force the river first, attacking the inhabited place suddenly and protecting the crossing for other units.

It was not easy to insure concealment of the river crossing. The Germans watched our shore sharply, showed reconnaissance activity, and at night illuminated and fired on the bend of the river. Only in the hours before dawn did the fire of the enemy weaken, and therefore this time was chosen for the crossing.

The preparation of the means of crossing began. About 300 captured metal casks were gathered and efforts were made to build rafts on them. The first test on water showed the unsuitability of these rafts. When fired on, the casks let the water in through bullet and shell-fragment holes and became heavy, causing the raft to list and lose carrying ability. Rafts of wood were tried, but after two hours in the water these also became heavy as the beams swelled, and the rafts lost carrying and steering ability. There remained the means finally tried—boats and ferries, which also had to be built.

By the beginning of the action we had prepared 102 boats, thirty-two large ones and the rest medium size. These were rowboats with four oarsmen. With the approach of darkness ten boats were brought up to the mouth of a small brook and carefully concealed in the bushes. At dawn, when the firing on the river's bend ceased, the boats were secretly pulled up to the place of troop concentration, trees and dense bushes concealing them well.

Here, then, began the forcing of the river. Scouts, machine gunners, mortar crews, and sappers under the command of Senior Lieutenant Bondarev system-

atically embarked with armament and munitions. The boats pushed off silently. On each of them, together with other troops, were our sappers who pulled the ends of ropes in order to fasten them on the other shore. In the interests of security and concealment of action there was no artillery fire.

The Germans were asleep, suspecting nothing. Bondarev's unit landed unnoticed on the right bank, captured hostile patrols, deployed, and quickly attacked the sleeping village. This unexpected attack stunned the Germans. A battalion of the enemy gave up the inhabited place almost without a struggle. During this time the sappers arranged the crossing of the other units. Already controlled by us were 700 meters of the right bank to a depth of one kilometer, and this was enough for the establishment of stable crossings.

But after four hours the Germans recovered from the surprise attack and opened strong artillery and mortar fire on the crossing. Besides this they undertook a series of counterattacks. Under these conditions the use of a ferry and assault bridges could not be thought of, and the decision was made to continue forcing the river in boats running along ropes.

We already had four such mobile crossings. During the next night we ferried over to the right bank in thirty minutes a whole battalion under the command of Senior Lieutenant Isakov. On the third day the river was forced by the remaining elements of the unit of all arms together with artillery and heavy mortars.

It should be noted that in the mass forcing of the river we suffered no losses in the boats. There was only one case when the fragments of a shell wounded a gun crew, but the courageous artillerymen were able to bring to shore their gun and ammunition intact. Serious losses in forcing the river were avoided in part by changing the position of the crossing, or rather, by maneuvering the boats. This made aiming harder for the enemy. Also, since operations proceeded mainly at night, it was hard for the Germans to combat the movable crossings.

Worse organized were the crossings in the neighboring sector. The mistake there was made in devoting too much attention to the construction of immobile crossings in the form of ponton bridges. The troops were busy with them all night, and missed the valuable night time for forcing the river, not going into action until dawn. The enemy was able to aim at the crossing and destroy the bridge. We profited by this mournful experience and did not build bridges. But the boats were not capable of moving the remaining units with their heavy weapons, and we made two-boat ferries for forcing tanks and guns across. Small assault bridges [apparently small footbridges as described in FM 5-6 and FM 5-10] were taken across on cables for the infantry.

The Germans increased the bombardment of the crossings. Thousands of shells burst on the shores of

the bend and in the river. However mobile our crossings, they were still exposed to the action of hostile fire because there was not a single place on the surface of the river that was free of fragments. And still our crossings were remarkably active, explained by the fact that the ferries, boats, and small assault bridges on cables were decentralized, not over a front of 700 meters as on the first day, but over four kilometers. Moving from one bank to the other, changing places and directions, the boats and ferries escaped aimed fire of the enemy. The small assault bridges were subjected to more fire because at first they were immobile. It was necessary, disregarding difficulty, to make them movable. Only sappers can imagine what it means to take them apart by links under fire and fasten them to cables. All this was done at night or in the morning, and the men worked neck-deep in the water.

Being convinced that our crossings could not be prevented by bombardment alone, the Germans brought up aviation. German planes tried to chase ferries and boats, bombing and firing on them. To save the rafts and boats from aerial bombs, the sappers had to keep them moving, pulling them by cables first to one and then to the other bank. At this time the ferries and boats were empty: crossing of troops and armament went on only at night and early in the morning.

It was more difficult to save the small assault bridges, and German aviation succeeded in destroying two of them. We rebuilt them and left them in the former place as false ones. But we took the real bridges to another place and began to change their positions oftener. We also had two false boat crossings. To draw the attention of the Germans, the sappers pulled empty boats by ropes from bank to bank for several days.

Experience has shown us that mobile boat crossings, ferries, and small assault bridges, are the handiest and least vulnerable means of forcing a water line. Constant maneuvering with these mobile means secures activity of crossings and uninterrupted transfer of troops and weapons even in conditions of strong enemy fire action.

The Japanese Soldier

[Translated at the Command and General Staff School, Fort Leavenworth, Kansas, from a Spanish article in *Revista del Ejercito* (Mexico) August 1943.]

THE JAPANESE soldier is a true killer of men. And he is not this by mere accident, but as the result of the education he has received. Since infancy he has observed the Code of the Samurai which preaches the absolute, unconditional, and certain loyalty of the warrior, teaching him that if he dies for the Emperor he is assured an enviable place in the spirit world where all his wants are ended forever. The Japanese soldier believes all this blindly and pas-

sionately. To kill the enemies of Hirohito, the incarnate spirit of the Goddess of the Sun from which all the Japanese—the favored race—descend, is an honor. If the warrior survives, he has been promised conveniences and comfort in Japan for the rest of his life. If he dies, he wanders with dignity in the spirit world as a respected man.

Although it appears strange, the Japanese soldier also suffers from an inferiority complex. He becomes angry when he learns or recalls that Japan has been obliged to copy from the Occident in order to become a world power. It pains and worries him to see that the white races are larger than he is physically, and this thought itself serves as an incentive for him to work much harder, or even doubly hard if you please. The idea that the divine mission of Japan consists in governing the whole of Asia having become inculcated in him, he hates the English and the Americans who constitute an obstacle to the fulfilment of his sacred mission. He hates the Americans especially on account of their policy of exclusion which has served to prevent the invasion of the whole of the United States by the people of Japan, flooding the country, so to speak, with cheap labor which would serve to lower the standard of living.

These thoughts convert the Japanese soldier into a frightful warrior. One cannot face him and observe the old Occidental concepts of war if one wishes to win. He has to be fought with his own weapons and with his own methods which are cruel, hard, unrelenting, calculated, and cold. And one has to be firm and resolute to achieve this end intelligently.

In the present armed conflict, when the crew of an airplane is forced to bail out, the pilots of the Japanese "Zero" planes, according to statements of Americans, machine gun the men who are descending in their 'chutes and who are their enemies.

"The Japanese fight till they drop lifeless and while they are dying never cease fighting, breaking all the conventionalities of civilized warfare," states a report which comes from the Southwest Pacific. "They raise their hands as a sign of surrender—then throw a hand grenade."

The reply to the question raised by soldiers such as the Japanese is that one cannot and should not observe conventionalities such as are found in the warfare of civilized nations if one hopes to win from those nations. In the minds of the enemies of Japan, as in the minds of the enemies of any warlike nation which risks all in the hope of gaining all, there should exist the insatiable desire to kill. The enemies of the Rising Sun need to prepare their minds for this also.

"They have put great confidence in what they consider to be the weakness of the white race," declared the ex-Ambassador of the United States to Japan, Mr. Joseph C. Grew, on the occasion of his recent return to his native land. "They regard us Americans as anemic or weak liberals who require our daily

comforts and who are opposed to the sacrifices required in a war against a military machine which has been prepared and trained with the simplicity of the Spartans and with the hardness and consistency required by war."

The Japanese soldier has learned the doctrine of offensive warfare. Defensive action is considered indecorous by the members of the Imperial Army. This spirit has been fostered and perpetuated since the time of the founding of the modern Japanese Army.

Mr. Grew informs us that the Japanese High Command counts implicitly on the advantages that this doctrine gives them over less aggressive enemies.

"When they delivered the blow," declared Mr. Grew, "they left no margin for failure. Neither did they leave the way open for retreat. They attacked with all the force and with all the power that they had at their command and they will continue to fight in the same form till they are completely crushed."

Also we must take into consideration the fact that it is considered no disgrace by the Japanese soldier to deceive the enemy. Anything that serves the purpose of killing his enemies is justifiable according to his code. Dressed as a civilian among the polyglot crowds of the Far East, he fires a bullet into the back of his enemies. If he captures airplanes, he makes use of them to attack the enemy and he approaches the pilots who imagine him to be one of their comrades, then pours a deadly burst of fire into their planes.

While his envoys assure us that there exists an atmosphere of security and talk of peace, he strikes a death blow, attacking his enemies unexpectedly and with great force.

The precision and extent of their attacks leaves no room for doubts regarding the grand strategy of the high Japanese military leaders who desire to establish the Japanese hegemony throughout all of Eastern Asia, and for this purpose have dedicated years to tactical preparation. A long time ago they chose theaters of operation and ordered the training of an army to fight under the conditions prevailing in those places. The Japanese soldier is an excellent fighter, a superior fighter, under jungle and forest conditions only for the reason that he has received training in this kind of fighting. The training to which we are referring has not hesitated at any sacrifice or detail. In Luzon, for example, they controlled the movements of their troops by whistling in imitation of the birds of the region.

Their initial success was due in large measure to the years in which they were creating a fifth column after the Nazi manner in the zones they expected to invade. Malaya and Burma were crowded with fifth-columnists who secreted ammunition, sabotaged the defenders, established secret communications with the invaders who were arriving, and under-

mined the loyalty of the native populations to the British.

The Japanese studied the native psychology and this study bore them magnificent results. It is reported that in Malaya and Luzon, in the rear of the defenders, sounds were produced like those of machine guns and mortars, causing panic on several occasions. In the Dutch East Indies they made inscriptions on the trees or wood surfaces, produced noises or uttered cries, etc., to awaken the superstitions of the native troops. Large quantities of rockets were dropped from planes or were fired by reconnaissance groups to produce the belief that an attack from the rear was being effected. . . .

Add to this the contempt for death possessed by the Japanese, the hatred that they feel for the Americans who may prevent their Emperor from becoming the master and lord of a great Eastern Asia, and the years of intensive training that they have undergone, accustoming the men to terrible physical discomforts, and then it will be understood why the Japanese soldier is hard to fight.

One must learn perfectly the military tactics and strategy that are being prepared by the best experts and specialists in the world, especially the American observers. This information concerning the methods employed by the subjects of the Empire of the Rising Sun must be translated into victory when it is necessary to fight, with a calm mind but with hatred in the heart while one is fighting; for in this way one can kill and conquer. Every experienced and competent observer of the war in the South Pacific and the Far East knows the truth of the preceding sentences. In a recent report the following points were noted as true and generally accepted:

"The best morale among the troops of the Far East was found among the troops who had received intensive training in field maneuvers, who were in excellent condition, and *who had been taught to kill*. In these units the commanders and the staffs were constantly familiarizing themselves with the terrain, inspecting the installations, making sure that the men were properly fed and sheltered.

"Although the provisions for comfort that are now being made in the military posts of the United States serve, possibly, to temper the shock of the metamorphosis from civilian to soldier, yet the former can be changed into a good soldier only through the medium of intensive training and endless discomfort, the greater part of which should represent the conditions prevailing in actual combat.

"Morale, to say nothing of fighting efficiency, was very low in the officers and men who went out from the confinement of their quarters into hard reality. Among these forces, the commanders and staffs rarely left their command posts, forgetting their visits to the front lines and at times having recourse to oratory rather than to their presence for the inspiration of their troops."

Thus, we must be harder than the Japanese, and this is saying a great deal in addition to its being the truth. Only then can a powerful enemy be crushed, whoever he may be.

Problems of the German Medical Service

[Translated at the Command and General Staff School, Fort Leavenworth, Kansas, from a German article by Lieutenant-Colonel Dr. Wolff, German Army, Army Medical Inspectorate, Berlin, in *Berliner Börsen-Zeitung* 28 August 1943.]

THE ENORMOUS strides that have been made in medical research and the high stage of advancement of medical science and technique have made it possible for field medical officers, subordinate officers of the medical service, and stretcher bearers to be able to care for the wounded in the midst of enemy fire. The surgeon of our day does not lay down his arms even when faced with the worst wounds which modern equipment is capable of inflicting. He always accepts the battle, the battle for life, for the healing of the wounds. It is a hard and difficult fight. It has nothing to do with that soul-touching pity with which at times bad novels have a beautiful girl, bathed in tears, hold the head of the wounded hero in her lap. No, medical service in time of war is hard, it is the matter-of-fact work of men. It is a fight just like any other military action. And the thing that animates us is not some sort of weeping sentimentality, but the knightly, Nordic trait of standing by one's comrade, of not hesitating at any difficulty in conquering death and invalidism, in preserving the wounded man for his family, in restoring to his nation his strength in battle and in labor.

Every medical officer has behind him a long, careful, and thorough course of training, and where one of them falls out his place is taken by another who has also prepared himself for the work over a long period of years of industrious and steady application. Losses of medical officers are therefore particularly unfortunate and are not easily compensated for; yet they are bound to occur in war. The place of the field medical officer is at the side of his comrades and his presence during the battle prevents them from worrying and gives them a feeling of security, for they know that the helper is close at hand if anything happens to them.

Just as soon as it is at all possible, the wounded man is carried to the rear. Ambulances go as far to the front as possible and bring back the wounded, often under heavy enemy fire. At the main dressing station of the medical company, a few kilometers from the main line of resistance, the surgeons stand ready to care for the wounds and to perform urgent operations.

It is regarded as one of the most important requirements of the art of healing today to get to work on the case as quickly as possible and with all the

means at the disposal of the physician. The work of well-trained physicians far up at the front creates the best conditions for the subsequent treatment and healing of our wounded.

The medical service in time of war is harder today than ever. Day and night our medical officers, non-commissioned officers, and men must be ready. Not only during periods of preparation for action but also on the march and when halting for rest they must stand ready the same as in battle. In the war hospitals in areas to the rear the demands that are made even on nurses are usually of the greatest. But also at home the work under war conditions is not to be compared with that under conditions of peace, for without considering anything else than the effects of the air raids, the medical service requires many times the courage and willingness to sacrifice that is required in other callings.

For the injured man himself it is a long way from the time he is wounded at the front to the hospital at home. The broad expanses of the east, the scarcity of railway lines and good highways, the conditions of a sparsely populated and little civilized land, all make themselves felt in the most distressful way. The evacuation of the wounded is becoming one of the hardest problems that this war has brought. Supplies, food, equipment for armies of millions of men roll along their way to the front in enormous quantities in answer to the demands. The outcome of hard, decisive battles depends on the prompt arrival of these supply trains. The few existing railways are loaded beyond the limits of their capacity. Hospital trains? To let them pass, the trains loaded with food so badly needed at the front would have to be side-tracked.

The number of those that can be evacuated by planes is limited, and before anything can be done the preliminary technical and tactical conditions have to be met for the landing and taking off of the planes. Ambulances? Their capacity is still more

limited, and they are used at the front principally for carrying the wounded to the main dressing stations and the field hospitals. It is not possible to make ambulances available for long journeys over the terrible roads. Very unusual situations, therefore, frequently arise for our medical officers, organizational difficulties that are added to their medical and military tasks.

Often the obstacles seem at first to be insurmountable. But they must be mastered—and they have been mastered, too, by means of emergency solutions; for example, by means of emergency hospital trains made up of freight cars. Ordinary passenger cars are often not suitable for the transportation of wounded men who must lie down. Freight cars cannot provide the wounded men with all the comforts and conveniences they deserve, but there is nothing else to be used, and at any rate the main object is attained—the wounded men are evacuated to the rear.

In the medical service of this war there are still other problems which make the greatest demands on the energy and organizational abilities of our medical officers. Thus in the course of a few hours it is often necessary to install hospitals in buildings that are dilapidated and dirty and filled with vermin and rubbish, or in miserable peasants' huts that must meet the German requirements with respect to cleanliness and orderliness as well as provide the facilities for the treatment and hospitalization of our wounded.

Hour after hour, day and night, the surgeons with their assistants stand at the operating tables and do whatever is possible for them to do. But the wounds made by modern weapons are severe and it frequently happens that a large number of men are wounded at the same time and place. The work of the medical service in war is not easy for those who carry it on—our medical officers, noncommissioned officers, and women nurses.

I consider that supply dropping is just as much a combat mission of the Air Force as any other type of mission.

—Colonel J. G. Wilton, in a talk to the instructors at the Command and General Staff School. Colonel Wilton was Chief of Staff of an Australian division during the operations against Salamaua.



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